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Proliferation Threats and Missile D...

PROLIFERATION THREATS AND MISSILE DEFENSE RESPONSES

HEARING

BEFORE THE

MILITARY PROCUREMENT SUBCOMMITTEE

JOINT WITH

MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

OF THE

COMMITTEE ON NATIONAL SECURITY
HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

FIRST AND SECOND SESSION

HEARINGS HELD
APRIL 4, 1995, FEBRUARY 29, MARCH 7 AND 21, JUNE 18 AND 20, SEPTEMBER 27, 1996

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SDI/BMD PROGRAM

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
Washington, DC, Tuesday, April 4, 1995.

The subcommittee met, pursuant to call, at 2 p.m., in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. We will convene the Subcommittee on Military Research and Development. And thank our witnesses for indulging us in a brief bit of dialog back and forth.

Lt. Gen. Malcolm O'Neill, accompanied by the service program executive officers for ballistic missile defense, Brigadier General Black, Admiral Hood, and Brigadier General Hawley.

The committee appreciates the presentation we have here today. I ask unanimous consent to insert my formal statement in the record.

This is the third hearing we have held on ballistic missile defense in this session of the Congress. The first two dealt with the issue of what is the threat. We had both the classified and unclassified briefing lasting a total of 6½ hours in this hearing room, which many members attended and stayed throughout.

We had a second hearing where General O'Neill testified on where we are in terms of the program and what kinds of milestones we have laid out before us.

The focus of today's hearing is on what have we got for the money, where has the investment taken us, what kinds of advances have we made, to allow the members to see, to hear, to feel, to touch, and to interact with those people that were implementing many of the recommendations made over the past two decades in terms of missile defense technology.

Those of us here support your efforts, General O'Neill, and I would say there are many on this committee who feel that you are doing a fine job, and feel it is important for Members of the Congress and this committee to understand just what have we purchased.

There has been much criticism, perhaps, that we have gone in too many different directions, that we have not been focused enough in the past. This is Congress' attempt to understand where have we gone and what have we gotten, what kinds of advances,

what kinds of capabilities do we have today that we did not have in the past.

Having walked through this briefing earlier today with four or five or six of my colleagues from this committee, I was impressed by what I heard and saw and by the message you provided to us. In fact, there are many things that I was not aware of that we now have the capability of dealing with, because of the technological investments that we have made.

Many who criticize your investment say we got nothing. This is the first such hearing in at least the last 5 years and the first formal hearing in a decade where Congress has a chance to see on the record what we have gotten for our investment.

I guess what brings this home to bear for me is an issue I raised first of all 2 months ago dealing with the leakage of information that the Russians were about to make available their SS–25 technology, which is the state-of-the-art ICBM technology the Russians have been developing for several decades. When I first went to get the information, I was told by our intelligence community, "That is classified information, we don't know whether we can give it to you."

I went back time and again and got access to some declassified Russian internal news articles and military documents and found that at least there was a deliberate effort to market this technology as a space launch assembly platform, and in fact just this weekend, CNN is carrying a live broadcast showing the SS–25, and what was in fact the failed attempt to launch an Israeli satellite on the top of what is in fact one of the most sophisticated Russian weapons systems.

And in fact this proves out something that many of us have been concerned about, that in fact the Russians are looking to export this technology. It is a mobile-launched technology that could present real problems for us down the road.

The kinds of information we see today demonstrate clearly to me, General, that you were on top of the need. You understand where we need to go. I applaud you for your leadership and applaud you for the role you are playing. We want to work with you, but first we want to better understand what we have gotten for our dollars and that is the purpose for today's hearing.

[The prepared statement of Mr. Weldon follows:]

OPENING STATEMENT OF

REP. CURT WELDON (R-PA) BEFORE THE SUBCOMMITTEE

ON RESEARCH AND DEVELOPMENT

4 April 1995

It is a pleasure to welcome you once again, General O'Neill, to our subcommittee.

The issue before us today deals with what we have spent on the SDI/BMD program and whether we have gotten our money's worth. We will try to focus this hearing on the tangible results of that investment in the area of technology development.

I think what we will hear today is a remarkable story of tremendous technological achievement. Those working this issue for you at BMDO are some of the finest scientific minds around. There is much that has been accomplished over the past dozen years that was thought to be nearly impossible. You and your people are to be thanked for the dedication and resolve you have brought to your mission of finding cost-effective technological solutions to the problems posed by the threat of ballistic missile attack.

However, technology, regardless of its level of maturity or cost-effectiveness, is useless if not fashioned into workable and operational systems. For all the progress made in this area, I remain struck by the fact that we in this country are just as

vulnerable today to a single missile launched at us as we were over a decade ago when the SDI program itself was launched.

We have all heard critics (and some supporters) of your efforts argue that after 12 years and more than $30 billion we still do not have an operational and effective BMD system. And while they are correct, the critics -- many of them here in the Congress -- fail to point out that it was their opposition to fielding a system that has left us unprotected.

I want to remind my colleagues that when the SDI program was started by President Reagan in 1984 it had as its goal not the deployment of a BMD system, but rather the exploration of technologies on which an informed deployment decision could be made. SDI did not start out as an acquisition program. It was purely a technology research program. Over time, however, efforts were made to move the program out of the laboratory, into the field, and toward a serious acquisition phase. These efforts were resisted by the Congress, in part due to misplaced concerns over U.S. compliance with an arms control treaty that our partner had violated and that had been made incresingly irrelevant by the march of technology.

If the history of SDI tells us anything, it tells us that new technologies can be restrained by old political thinking. It is a sad commentary when we have the technological capability to protect our people but lack the political willingness to do so.

I don't believe that the American people, when made aware of the facts, will support the Administration's desire to leave them defenseless against the threat posed by ballistic missiles.

I would argue that the SDI program accomplished all of its primary objectives except the most important one -- it didn't result in a defense for Americans against missile attack.

So, what did we get for our $30 billion investment in SDI/BMD?

I have already alluded to the scientific progress made, which includes advances in technologies with both military and civilian applications. Major breakthroughs have occurred in electronics, propulsion, sensors and detectors, power generation, computers, and communications. The results of these achievements have been on display to the public here in this building all morning, and I would encourage my Committee colleagues to take a look at that display and the impressive achievements that have resulted from our efforts in BMD research and development. These advances have benefitted the commercial sector as least as much as they have benefitted the military. I trust we will hear more about them later.

But more than that, the SDI program had political repercussions of at least equal magnitude. By some accounts, our investment in SDI helped accelerate the disintegration of the

Soviet Union. And here I refer to the statements of Russian officials, not Americans. For example, the Russian Deputy Foreign Minister stated that the Soviet Union collapsed precisely because of SDI. Russia's former Ambassador to the United States has estimated that the SDI program hastened the USSR's demise "by five years" at least.

If we accept these statements as true, then the return on our investment in SDI was certainly greater than its the cost and ultimately more beneficial to the American taxpayer than is generally assumed.

The political effect of the SDI program on the Soviet Union was arguably as important as the military one and is an important part of the answer to the question, "What did we get for our investment?" A very detailed answer to this question was provided a year and a half ago by two of your predecessors, General Abrahamson and Ambassador Cooper, who prepared a report on the very subject of this hearing. I commend this report to my colleagues, all of whom should have a copy of it in front of them. Without objection, I wish to submit a copy of the Abrahamson/Cooper report for the record as part of these proceedings.

I want to say a few words about the national missile defense part of the SDI/BMD program. I find it absurd that as our technical ability to defend Americans against missile attack has

increased, we have moved further and further away from that objective. In the past 12 years, the NMD program, which has been mischaracterized as "Star Wars," has been severely reduced in scope, magnitude, and funding, and its schedule has slipped further and further to the right.

Since 1988, the NMD program has been repeatedly cut. This Administration has removed any objective of deploying even an ABM Treaty-compliant NMD system. Promising space-based technologies that could enhance the coverage and effectiveness of a national missile defense system have been abandoned. The program has been pared back to a bare bones technology research program focusing on defending against a limited attack that, we are told, would take 6 years to deploy even if a decision to do so were made today.

I don't believe that hostile nations seeking to acquire ballistic missiles capable of threatening us will wait 6 years for us to erect a defense against them.

It took the Gulf War and the tragic death of 27 Americans from a single SCUD missile to bring about a bipartisan consensus in support of missile defenses. The Missile Defense Act of 1991 was the result. Unfortunately, that bipartisan consensus was short-lived.

It is my hope that with the help of my colleagues on the

Missile Defense Caucus, Mr. Hunter, Mr. Spratt, and Mr. Geren, that a renewed bipartisan, grassroots effort to educate the American people on what their investment in missile defense has produced will lead to the restoration of a bipartisan consensus for moving forward to protect the American people.

I again welcome you, General O'Neill. We are looking forward to hearing your comments today.

Mr. WELDON. With that, I will yield to the ranking member of the subcommittee, Mr. Spratt.

Mr. SPRATT. Is Mr. Hunter going to yield?

Mr. HUNTER. I have no statement to make and I want to hear these witnesses.

[The prepared statement of Mr. Hunter follows:]

OPENING STATEMENT OF

REP. DUNCAN HUNTER (R-CA) BEFORE THE SUBCOMMITTEE

ON RESEARCH AND DEVELOPMENT

4 April 1995

General O'Neill, welcome back. It is a pleasure to have you testifying before us again.

As I travel around the country and talk to Americans, I find that it is difficult for many of them to fathom what has been achieved as a result of our investment in ballistic missile defense. To a certain degree, this is understandable, since your organization does not produce any high visibility goods or services that are marketable directly to the American people. In fact, as is true with most defense spending, the average American doesn't recognize in his day-to-day life the tangible benefits of his investment in the nation's security.

But as we both know, the benefits are there and they are real. Many of the technologies that touch peoples' lives on a daily basis can be attributed to research done as part of the SDI, and subsequently BMD, program. This includes remarkable advances in the fields of medicine, electronics, and information technology.

This is your opportunity, General, to tell the American people precisely what you and your people have accomplished with

the resources that have been placed at your disposal. You have an important story to tell about how far we have come in developing the means to protect our troops, our allies, and ourselves against the threat of ballistic missile attack, and about how the technologies developed have been put to good use for broader purposes.

Before taking your testimony, I'd like to offer a few observations for the record.

First, as you know, I believe that building and deploying a defense against ballistic missile attack is one of our most urgent national security priorities. I agree with my colleague Mr. Spratt, who has suggested that missile defenses are even more relevant in today's post-Cold War world against rogue states with a handful of missiles than they were when we were faced with thousands of Soviet weapons targeted against us. I, and the other members of the bipartisan Missile Defense Caucus, plan to work with you to help you achieve your goal of putting "rubber on the ramp" as soon as possible.

Second, this Administration, building on the actions of its predecessor, has refocused the BMD program to emphasize theater missile threats which it views as "here now." While I agree that theater defense should be our top BMD priority, I remain deeply disturbed with the emasculation that has taken place in the national missile defense program. I doubt seriously whether

Americans will continue to support a program that protects our allies from the threat of missile attack, but leaves them vulnerable here at home.

Third, even with most of our investment in BMD going to theater defense, the current TMD program and funding profile are still insufficient to provide effective protection against those threats that exist today and which loom on the horizon.

One of the important lessons we learned in the Gulf War was that the performance of the PATRIOT missile, as remarkable as it was, was inadequate to the task of reliably countering the most primitive SCUD missiles launched against our forces. Americans died as a consequence. The PAC-3 missile, THAAD, and Navy Lower-Tier or Area Defense systems that make up the "core" TMD program are essential improvements to our capability to defend our allies and troops abroad.

The TMD budget has declined since 1989. Schedule slippages are common and promising TMD concepts such as Navy Theater Wide or Upper-Tier Defense are not part of the acquisition cycle. It is imperative that we move out smartly on deploying the most effective TMD systems we can in the shortest time possible. Our adversaries will not wait for us to perfect a defense against their weapons.

Fourth, I am concerned, as are many of my colleagues, that

our investment in BMD technologies will not result in the most effective defenses for our forces as a result of political decisions made by the Administration that artificially constrain our capabilities. In particular, the Administration's effort to negotiate restrictions on TMD performance parameters as part of its strategy to restore the "integrity and effectiveness" of the ABM Treaty is ill-advised and, I believe, dangerous.

It is clear to this Member that our $30 billion-plus investment in BMD technologies has produced capabilities which we are not willing to exploit. Unless the Administration abandons its desire to negotiate away our right to maximize the capabilities produced by more than a decade of investment, the American people will have been shortchanged.

There can be no doubt that the technological progress achieved under the SDI/BMD program has been impressive. Prior to this hearing, I had an opportunity to stop visit the exhibit in this room testifying to the accomplishments that you and your people in BMDO and the contractor communities have achieved. In spite of repeated attacks on the program and significant budget cuts, we have made great progress in solving the problem of ballistic missile defense. The American people should know that their investment has not been in vain. We must now muster the political will to act on what we have learned.

I am looking forward to hearing from you, General, as you

explain to our members, and the rest of the public, precisely how far we have come.

I thank you for your appearance today and welcome your testimony.

Mr. SPRATT. With that statement of statesmanship, I will also spare the audience any opening statement, so that we can proceed with the hearing.

Welcome, General O'Neill, and everyone with you.

Mr. WELDON. General O'Neill, it is all yours.

STATEMENT OF LT. GEN. MALCOLM R. O'NEILL, DIRECTOR, BALLISTIC MISSILE DEFENSE ORGANIZATION

General O'NEILL. Thank you very much, Mr. Chairman and members. It is a privilege to appear before you today and testify on the accomplishments of the Ballistic Missile Defense [BMD] program. I have a formal statement which I would like to submit for the record.

Mr. WELDON. Without objection.

General O'NEILL. I have an oral statement I would like to make at this time.

I am delighted that the committee has taken the time to hold these hearings on the BMD Program. I am particularly pleased that today we will address the specific accomplishments the Department of Defense and industry have achieved in making ballistic missile defense a reality.

At the committee's recommendation, I have brought just some hardware to illustrate how we are making BMD into a reality and how these different components fit into the systems we will be fielding in the next few years. Equally important, these hardware displays demonstrate the technical progress we have made during the past 12 years in BMD research and development.

I believe our investment in the BMD Program over the past 12 years has been sound and fruitful. Overall, as a Nation, we have done what we set out to accomplish: demonstrated that ballistic missiles of all ranges could be detected, tracked, and destroyed by missile defense weapons. In my testimony today, I hope to demonstrate that we have accomplished this mission and are now beginning to field highly effective missile defenses.

In my prepared statement I have attempted to more fully catalog the legacy of past BMD R&D efforts in our acquisition programs and systems. I hope the committee finds this information useful in exploring the accomplishments of BMD and assessing the value of our past and current investments.

I would like to take a few moments to outline the context during which we worked on the BMD program. Since its inception in 1983, the BMD Program has evolved through four distinct phases: A broad-based technology and demonstration program—during the timeframe 1948–86; a focused development program designed to acquire a space- and ground-based strategic defense system—roughly 1987–90; an acquisition effort for global protection against limited strikes, or GPALS—roughly 1991–92; and the present program, which focuses on acquisition of advanced theater missile defense systems, with national missile defense oriented toward technology readiness—roughly beginning in 1939 and up through the present.

These changes in the program mirror the changes in the world. Throughout this time of change—decline in the Soviet Union's missile threat, the rise of missile proliferation and use in the Third World, and the program's orientation and level of funding—the

BMDO Program continued to succeed in achieving its objective of developing and demonstrating defensive technologies required to defeat theater ballistic missiles and missiles of all ranges.

Today, BMDO is harnessing these technologies to support deployment of improved theater missile defense systems for the war fighter. I am particularly proud that we are making missile defense a reality now.

My first chart illustrates how the BMD Program and funding is prioritized. The program continues on the course set by the administration in its 1993 Bottom-Up Review.

First, to meet the existing missile threat to forward deployed United States and allied force, we are developing and deploying increasingly capable theater missile defenses.

As second priority, as a hedge against the emergence of long-range ballistic missile threats, we are developing options to deploy a national missile defense for the United States.

And as a third priority, we continue to support limited research on more advanced BMD technologies to keep pace with the threat and improve the performance of both theater and national missile defenses.

My next chart illustrates the evolution of our TMD capability. While I show you a quad chart here, the packages you have before you also have each one of the quadrants on a separate page, so you can see them a little bit better.

Just for reference, the scenario that we are talking about in these quads is a NATO scenario FSD–16 that talks to an aggressor attack from the southeast into Turkey, with Adana the enemy's objective and the allies defending on the Iskenderun peninsula with support from the sea.

The capability we had in Operation Desert Storm is depicted in quadrant one. It shows the deployment of the Patriot advanced capability 2 system. This system, which was designed as an air defense system to defend against aircraft and cruise missiles, had an initial defensive capability against Scud-class ballistic missiles.

Note in the picture we cannot defend the city of Adana and cannot move the Patriot onto the beach to support the Army forces engaged in the battle.

The BMDO's near-term improvements is shown in quadrant 2. This is the significantly improved TMD capability our warfighters have in their arsenals today. Since Operation Desert Storm, we have fielded first generation TMD enhancements to existing air defense capabilities and early warning systems. We have deployed an upgrade to the Patriot system, called a quick response package, and we are beginning to deliver the guidance enhanced missile for the Patriot to the field.

We have improved the U.S. Marine Corps' Hawk system. These three systems will provide better tactical ballistic missile defenses for our troops.

We have fielded early warning system improvements such as Talon Shield and the joint tactical ground systems or JTAGS which allow U.S. forces overseas to more rapidly obtain improved satellite warning data of ballistic missile launches. Our improvements expanded the capabilities of these systems so that they can better de-

tect, track, and intercept tactical ballistic missiles. We have hardware from these programs here with us today.

The Patriot guidance enhanced missile we took delivery of in February incorporates a low-noise receiver that improves the missile seeker's ability to look through noise by a factor of four.

I draw your attention to the colonel in the front who is showing you this equipment. The receiver and improved fusing of the warhead gives the GEM missile its increased capability against tactical ballistic missiles, in fact, a fourfold increase in area of protection by the Patriot. Improvements to the Patriot missile are rolling off the production line today and we will deploy about 350 of these missiles.

Deployment of our core TMD Program is represented in the third quadrant on the chart. In the next few years we will begin fielding the Patriot advanced capability No. 3, the Navy area defense, and the theater high-altitude area defense systems. These three core TMD systems represent a tremendous increase in the capabilities we will provide to the war fighter.

They provide protection over wider areas than the current systems and will be effective against the full spectrum of existing ballistic missile threats. These programs have roots in the BMD Program.

In the hallway now, and it was in this room earlier, is a full-scale model of the missile for the Patriot advanced capability No. 3. PAC–3 will be a hit-to-kill interceptor that destroys its target by literally making metal-to-metal contact.

The development of hit-to-kill interceptor technology for TMD systems evolved from SDIO. In 1986 and 1987, a series of experiments were conducted by SDIO which demonstrated the capability of using hit-to-kill technology to destroy tactical ballistic missile targets. Shortly after these experiments, we began a technology program called ERINT, or extended range interceptor. As you will recall, last year the ERINT missile was selected as the munition for the PAC–3 system.

Many of the PAC–3 system components I have here today are responsible for improving the Patriot system and enabling it to achieve this performance. One example is the PAC–3 inertial measurement unit, which serves as the inner ear of the missile, sensing attitude and motion, and thereby assisting in guiding the missile from launch to the point where the seeker can lock onto the target.

This particular IMU is a ring-laser gyro, which was specifically designed to be small, lightweight, and low cost in order to be used on missiles. It was developed under the SDIO hypervelocity projectile program. We intend to use the same IMU for the THAAD interceptor.

The PAC–3 attitude control section features 180 small solid rocket motors that provide a much more agile missile than the PAC–2 missile, which relies solely on tail fins. This added agility translates directly into improved accuracy and lethality of the missile.

The Patriot system's leading edge technology in electronic components comprise the heart of the PAC–3's radar upgrades. They accomplish three major improvements: First, allowing engagement of the targets; second, producing more lethal intercept; and last, im-

proving system reliability. These components are also with us, as you saw.

I think our video of three flight tests will show the success of the program, PAC–3, and maturity of its technology. To the screen just behind me will be a video of those tests.

The first two intercepts you will see are against ballistic missile targets. The target simulates an SS–21. That is the target being launched. The interceptor is away. There is no warhead on the interceptor. It made a metal-to-metal contact with that target.

The next target simulates a unitary chemical munition. The target is away. If you look closely, you can see the thrusters burning about 20 feet away from the intercept. You will see it in slow motion now. The thruster burns, stops, burns, stops.

The last test is against a simulated cruise missile. It is a BQM–34 missile flying a cruise missile flight vector. All three of these intercepts were made about 6 miles down range and about 6 miles altitude.

The Navy area defense system will build on the Nation's investment in the Aegis weapon system, the vertical launch system, and the standard missile. The following videotape will show the launch of a standard missile off an Aegis destroyer to merely illustrate how a Navy area defense system interceptor would operate. There are vertical launch cells on the ships, and you will see it launched. This is an earlier version being tested.

The Aegis system is a $42 billion investment. We are a modification to the Aegis system, and we are providing a capability the fleet has to have to fully complement the capability of that very valuable system.

In that context, we are developing an infrared seeker, which incorporates technology from past BMD technology programs in the front-end of the standard missile.

The THAAD system is the centerpiece of the core theater missile defense program. It is designed to engage the full spectrum of theater ballistic missile threats and to expand the footprint of the defended area. The THAAD system is composed of an interceptor, a ground-based radar, and command and control equipment.

THAAD will provide a unique capability for wide area defense against ballistic missiles at higher altitudes and longer ranges with a lethal hit-to-kill ability. This is a mission the PAC–3 and Navy area defense systems cannot perform. We will begin demonstration/validation flight tests of the THAAD interceptor in about a week.

The videotape shows the large radar called the theater missile defense ground-based radar. What you will see is the face of a transportable X-band phased array radar. The hardware is currently manufactured and is part of our test program.

The next individual crow clip will show an early sled test for the THAAD interceptor. You have to look fast. What you see is the interceptor traveling down a track at about 2 kilometers per second and hitting a simulated reentry vehicle. There is the target. There is the intercept.

The next clip shows the simulated hot firing test of the interceptor from the launch canister. This is important to verify the design of the missile and launch canister. As I said, the first flight test of THAAD will be in about a week.

The heart of the theater missile defense radar is the transmit/receive element assembly, called TREA's, as and you see they look like trays. There will be 792 TREA's in each of the radars. This equipment represents or efforts to leverage or NMD systems off of TMD developments.

Both the TMD and NMD GBR programs have evolved using technologies developed by SDIO, BMDO, and ARPA, as well as from commercial off-the-shelf equipment. The common core software processing programs resident in the radars were developed in the SDIO program.

The terminal imaging radar program, initiated under SDIO, developed imaging and discrimination techniques, and the radar scheduler functions. These are some of the most complex functions a BMD radar system must perform.

The radar programs also make maximum use of commercially available equipment. The prime power unit is composed of commercial generators and alternators. Meanwhile, the electronic equipment unit uses commercial computers and high-speed data recorders.

In the room today is the THAAD interceptor and kill vehicle, a full-scale training aid to my left, we used in preparations for the initial flight tests. As you can see, the sensor window is located at the top and the attitude control thrusters ring the sides of the interceptor. You can imagine what this does in terms of lethality to a target ballistic missile when it was intercepting at speeds approaching 3 kilometers per second.

The THAAD interceptor has its lineage in other SDIO and BMDO programs. The booster uses state-of-the-art composite materials derived from the BMD materials and structures program.

THAAD's thrust vector control system, used to control the missile's flight during boost phase, is an important is an important component developed under the SDIO's ERIS and HEDI programs. The seeker window has its legacy in SDIO's HEDI seeker window development. Meanwhile, the seeker's sensitive staring focal plane array emerged from BMD sensor technology efforts over the past 10 years.

The systems in the fourth quadrant of my chart illustrate our advanced TMD capabilities—those systems which could be deployed after the turn of the century and could expand our capabilities beyond the core. These include the Navy upper tier system, which would provide THAAD-like capabilities to the fleet; medium extended air defense systems, or MEADS, which could provide tactical ballistic missile and cruise missile defense for the maneuver force; and, finally, boost-phase intercept, which could be used to engage ballistic missiles early in their flight, over the territory of the attacking nation.

The next videotape shows the indoor hover tests we conducted for the LEAP projectile, which is applicable to the Navy upper tier. The vehicle is locked on to a simulated target and is hovering under 1–G gravitational force to show it can provide control thrust.

Because of past investments in this technology we have been able to shrink the size of interceptors while improving their performance. Now LEAP is potential candidate for the Navy upper tier system.

We also have two contractors' versions of the LEAP kill vehicle here today. Colonel Townsend to my left is pointing to one of them, that happens to be the Hughes version of the LEAP vehicle. Weight dry is about 7 kilograms. Advances in miniaturization and integration have reduced the size of these vehicles, which used to be the size of a Volkswagen, to the size of a breadbox. Many of the miniature component technologies critical to LEAP are available for to you see.

My next chart presents the department's national missile defense program, which is a well-focused technology readiness program. The NMD program is based on a strategy of technical readiness. First, readiness that increases incrementally to perform fully against simple and complex threats. Second, readiness to build and deploy a system quickly as soon as we see threats emerging.

In the next 2 to 3 years, the technological capability will be achieved which could address a limited ballistic missile attack. This capability could be operational in about 3 years after a decision is made to deploy.

I have with me today a one-quarter scale model of one of the NMD ground-based interceptor kinetic kill vehicles, and Colonel Townsend is holding that vehicle. It is a quarter scale so it would probably weigh 50 to 60 kilograms when it was fully filled out.

Today's ground-based interceptor program has its beginning in the Army's homing overlay experiment and SDIO's ERIS program. These were early designs of ground-based interceptors that could destroy reentry vehicles outside the atmosphere.

The next videotape segment shows the January 1991 ERIS intercept. Because the interceptor and target will be traveling at orbital velocities, they literally vaporize one another when they hit.

This is the interceptor being launched. The lower vehicle was a photo system that was taking pictures of the intercept. It didn't miss. It hit.

Examples of the technologies we have put on the shelf from this program include guidance and control technologies; high performance, radiation hardened electronics; focal plane array technologies, signal processors; and materials and structures. And we brought many of these components here with us today.

Past investments allow us to improve the proposed ground-based interceptor system. For instance, interceptor technology developments over the past 10 years have allowed a size reduction from 2,500 kilograms for HEO to 160 kilograms for ERIS to 45 kilograms for the GBIKKV. Since weight and cost for a complete weapon system are directly proportional, BMD interceptor cost versus become significantly lower.

Although funding for the space and missile tracking system, which is a space-based, over-the-horizon sensor, falls under the Air Force budget request, the system provides a vital role for both theater and national missile defense. The system provides surveillance, warning and track data to support overall command and control, active defense, passive defense, and attack operations for ballistic missile defense. A full-scale mockup of the 60 gigahertz microwave cross language for the tracking system is here today, and Colonel Townsend is pointing to it right now.

The videotape shows us testing the sensors for the space and missile tracking system and technicians working with a full-scale mockup of the satellite.

This is the seeker locking on and moving from target, simulated target, simulated target, to sense them, their position, send that information down to the ground crew. There is a full-scale mockup of the system.

The BMD program has been working on space based IR tracking for many years. We have focused on technology development, phenomenology, data collection and experiments supporting system development. The space and missile tracking system is derived from earlier SDIO development efforts for the space surveillance and tracking system.

In addition to capitalizing on SSTS technology, it also takes advantage of past SDIO programs, such as Brilliant Pebbles and ground-based surveillance and tracking system. For example, the lightweight beryllium optics fabricated and tested under GSTS are very similar in size and optical prescription to what we need for the over-the-horizon sensor in space. In addition, this sensor incorporates the GSTS's tracking and discrimination investments.

The next chart shows the BMD technology program, which is the third leg of the elements of the ballistic missile defense program. We are focusing our efforts on those technologies which are most critical to improving TMD and NMD systems, component side on the left and advanced concepts on the right. The advanced concepts we are looking at include directed energy and kinetic energy weapons for boost phase intercept.

On the one hand, we have worked on component technologies. During the past 12 years we have advanced the state of the art in sensors and detectors, guidance and control, computers and signal processors, communications, power, propulsion, and materials and structures. We have made great progress in propulsion systems in the course of the program.

When the SDI program was initiated in 1983, the state of the art in liquid propulsion was defined by the Minuteman III post boost vehicle that provided a thrust equal to 30 times its weight. Our interceptor systems can now depend on thrusters like this one here that weigh only a tenth of a pound and provide thrust-to-weight ratios grater than a thousand. This one has a 1,200 to 1 ratio.

We also focus our efforts on advanced concepts which could provide clear technology solutions to tomorrow's threat developments. These include airborne kinetic energy boost phase interceptor technologies and directed energy boost phase intercept concepts.

The BMD program has demonstrated most of the key building blocks needed to build a deployable space-based chemical laser. Each of the SBL subsystems has been successfully demonstrated with hardware that is traceable and scalable to an operational system.

The high energy beam generator, named Alpha, has demonstrated megawatt class lasing in numerous tests since 1991. Beam control and telescope technologies were demonstrated in the large optics demonstration experiment in 1987 and the 4 meter diameter Large Advanced Mirror Program in 1989.

The next videotape clip shows the lethal effect of a high energy laser on the metal skin of a ballistic missile. It is a pressurized fuel tank for a missile of the size of the Scud. This is slow motion. What you see is when the skin is warmed up, the pressure blows outside of the booster.

Mr. SPRATT. Was that a chemically generated laser?

General O'NEILL. Yes, sir. It was a chemical laser at the high energy laser test facilities at White Sands, deuterium flouride laser.

The last chart shows a wrap-up of our current budget focus. Eighty percent of the budget for the ballistic missile defense program is for theater missile defense. Fourteen percent of the budget is for national missile defense and 6 percent for technology.

Before closing, I would like to describe our accomplishments in an area where we have perhaps the best record in the Federal Government. This is our success in spinning off many of our excellent technologies into commercial, civilian, and other defense applications.

A copy of our most recent technology applications report, which we have provided the Congress, is at your place.

Since SDIO and BMDO have pushed the technology state of the art in so many different tech fronts, our accomplishments have not gone unnoticed by the services and other Federal agencies.

Aside from military applications, I would like to mention our work with other Federal agencies. We work with the Department of Health and Human Services using our image processing expertise for improving digital mammograms.

We are presently talking with the Department of Transportation about highway safety and traffic monitoring using our sensors and laser radar technology.

In addition, we have a long-standing technology transfer program with NASA. We accomplish these technology transfer activities with only one-tenth of 1 percent of our budget.

Most of our efforts in technology transfer, however, are focused directly on the private sector. We do this because many of the new innovations small businesses develop will take 5 to 10 years to be adopted as military systems—far too long for most companies to wait to become profitable. If we want our successful innovators and their technologies to be around when we need them, they must become commercially viable.

Since our technology transfer program began in 1985, SDIO and BMDO technology have contributed to 187 new products commercially available today, 34 new companies which have spun off to bring new products to the market, 289 patents granted with 195 more pending, and 356 new ventures of various types, such as licensing agreements, partnerships, or cooperative agreements.

These companies have raised at least $200 million in matching private capital. Seven of these companies have gone public with a market value today of $400 million. My prepared statement highlights the accomplishments of three such companies in New York, Massachusetts, and California.

Mr. Chairman, our investment in BMD has paid significant dividends. The program has advanced the state of the art of a wide range of technologies that are essential to missile defense. Such investment has allowed BMDO to accomplish what it was chartered

to do: demonstrate that ballistic missiles could be detected, tracked, and destroyed by missile defense systems.

This accomplishment has been achieved by a focused and sustained effort to identify the concepts and technologies required to defend against ballistic missiles, rigorous testing of those technologies, integration of technologies into defensive systems, and refinement of those systems to make them affordable and practical. We are now at the point in time when we can field that which we have proved. Today, we are beginning to put real BMD hardware into the hands of the war fighter.

Yesterday's investments made this possible. Today's reoriented program is tailored to build on these investments and to meet the future defend needs of our country.

Mr. Chairman, following the hearing, I would invite you and the rest of the Members and staff to look at the hardware displays up close. The hardware is real and we are making progress in getting these items into the field. I think this is what the Congress wants to see—real systems developed and produced to protect our forces against the threats that are out there today.

Mr. Chairman, I look forward to working with this committee as well as the entire Congress to make highly effective and affordable ballistic missile defenses a reality.

I look forward, sir, to answering the committee's questions.

[The prepared statement of General O'Neill follows:]

Statement of

Lieutenant General Malcolm R. O'Neill, USA

Director

Ballistic Missile Defense Organization

before the

Committee on National Security

House of Representatives

April 4, 1995

Embargoed Until
Released by
Committee on National Security

Mr. Chairman, it is my privilege to appear before this hearing with the Subcommittee on Research and Development today to testify on the accomplishments of the Ballistic Missile Defense program. I am delighted that this Committee has taken the time to hold multiple hearings on the BMD program. However, I am particularly pleased that today we will address the specific accomplishments the Department of Defense and industry have achieved in making ballistic missile defenses a reality.

I believe our investment in the Ballistic Missile Defense (BMD) program over the past twelve years has been sound and fruitful. When and where there has been consensus between the Executive and Legislative branches, our progress has been especially outstanding. With regard to programs such as Theater Missile Defense (TMD), for which deployment is authorized, we are bringing hardware into the field now. With regard to programs such as National Missile Defense (NMD), for which deployment is not authorized, technologies are being readied which will support deployment when and if approved. Overall, as a Nation, we have done what we set out to do twelve years ago -- demonstrate that ballistic missiles of all ranges could be detected, tracked, and destroyed by missile defense weapons. In my testimony today, I hope to demonstrate that we have accomplished this mission and are now beginning to field highly effective missile defenses. Before we discuss the evolution and accomplishments of BMD technology, I think it is important for us to review the historical backdrop, during which the BMD program made its progress.

Historical Context of BMD

Research and development into ballistic missile defense dates back to World War II, in response to German V-2 ballistic missiles attacked London. During the 1950's and 1960's, antiballistic missile interceptor technologies and system concepts were designed to utilize nuclear warheads in order to destroy long-range attacking ballistic missiles. Sensor and guidance technologies were not yet mature enough to permit kinetic energy, hit-to-kill intercept of ballistic missile targets. Significant advances, however, in technologies applicable to ballistic missile

defense occurred after the mid-1970's. By the early 1980's the Army BMD program had advanced to the point where it was on the verge of revolutionizing missile defenses by being able to use non-nuclear, hit-to-kill interceptors as the basis for a new approach to BMD. In 1983 President Reagan challenged the U.S. scientific community to investigate the feasibility of developing a defensive system using new technologies to counter ballistic missiles. In response to this challenge, the Department of Defense conducted an intensive analysis of these advanced technologies and established the Strategic Defense Initiative Organization (SDIO) to manage the research effort.

When SDIO was established, the Nation was already spending more than a $1 billion annually on missile defense programs scattered throughout the military Services, defense agencies and the Department of Energy. The core of the "new" BMD program was created by drawing together a number of these projects, with the principal contributions coming from the Defense Advanced Research Projects Agency (DARPA), the three military Services and the Defense Nuclear Agency (DNA). When the organization was created, its charter clearly outlined SDIO's mission:

> SDIO shall manage and direct the conduct of a vigorous research program, including advanced technologies, that will provide the basis for an informed decision regarding the feasibility of eliminating the threat posed by nuclear ballistic missiles of all ranges, and of increasing the contribution of defensive systems to U.S. and allied security.

Since its inception in 1983, the BMD program has evolved through four distinct phases.

> 1) a broad-based technology exploration and demonstration program to identify those technologies ready for development to support an initial multi-layer comprehensive defense system, and those promising follow-on technologies that could provide resilience against a full range of responsive countermeasures (1984-1986);
>
> 2) a focused development program called Phase One Strategic Defense System, initiated in 1987, and aimed toward a significant ground- and space-based, layered defense capability to augment and strengthen deterrence (1987-1990);
>
> 3) the refocusing of the program toward a Global Protection Against Limited Strikes (GPALS) system, which would protect the U.S., our forces overseas, and friends and

allies against limited ballistic missile strikes (1991-1992); and

4) the reorientation of the BMD program to focus on acquisition and deployment of highly effective theater missile defenses to protect against the ballistic missile threat that is "here and now," and to maintain a technology readiness program for national missile defenses, should the ballistic missile threat to the U.S. emerge (1993-present).

The changes in the program's orientation mirror the changes in the world. When SDIO was chartered, the threat posed by Soviet strategic nuclear forces was ominous. The Soviet Union possessed over 8,000 nuclear warheads on ICBMs and SLBMs. The concern over the growing likelihood of a Soviet first strike capability was prevalent. The Phase One Strategic Defense System was designed to strengthen deterrence -- if the success of a Soviet first strike could be put in doubt, then Soviet warplanners, it was reasoned, would not have confidence in their ability to achieve their objectives.

With the breakup of the Soviet Union and the end of the Cold War, the BMD program was reoriented toward addressing regional threats caused by proliferation of weapons of mass destruction and shorter-range ballistic missiles, and the threat posed by potential accidental or unauthorized limited attack on the U.S. arising out of the political instability among the states of the former Soviet Union. The Department's new approach was embodied in a concept called Global Protection Against Limited Strikes (GPALS), which integrated theater and strategic defenses and emphasized global ***protection*** of forward deployed U.S. forces, power projection forces, and other U.S. overseas interests against theater-class ballistic missiles; and the U.S. against a long range limited attack.

Today, the BMD program is structured to respond to the "here and now" theater ballistic missile threat and an uncertain, but evolving, threat to the United States. The current program is founded upon the President's endorsement of the 1993 Department of Defense Bottom Up Review and the Missile Defense Act of 1991, as subsequently amended in Fiscal Year 1993, 1994, and 1995 National Defense Authorization Acts. The Ballistic Missile Defense Organization (BMDO), established in May 1993, manages, directs and executes the BMD program to achieve

the following objectives

1. Enable deployment of an effective and rapidly relocatable advanced theater missile defense capability to protect forward-deployed and expeditionary elements of the Armed Forces of the United States as well as friends and allies of the United States;

2. Develop options for, and deploy when directed, an antiballistic missile (ABM) system that is capable of providing effective defense of the U.S. homeland against limited attacks of ballistic missiles, including accidental, unauthorized launches or deliberate attacks;

3. Demonstrate advanced technologies -- as options for enhanced initial BMD systems -- such as space-based defenses and their associated sensors that could provide an overlay to ground-based interceptors; and

4. Continue programs of basic and applied research to develop follow-on technologies for both near-term and future technology insertion options and new system options to sustain a highly effective missile defense capability.

Throughout this time of change -- the decline in the Soviet threat, the rise in missile proliferation and use among the Third World, the program's orientation and level of funding -- SDIO and now BMDO continued to succeed in achieving their objective of developing and demonstrating the defensive technologies required to defeat ballistic missiles of all ranges. Today, BMDO is harnessing these technologies to support deployment of improved theater missile defense systems for the warfighter. I am particularly proud that we are making missile defense a reality today.

Development of BMD Systems and Entering the Acquisition Process

When technology success meets a valid military need, the result is often a decision to move a system concept into the formal acquisition process in order to capitalize on that technology. System acquisition activities do not make the headlines as often as spectacular technology breakthroughs, but it is this disciplined process that results in fielded military capability. The formal acquisition process is where we find out if those promising technologies will work as part of a larger system. It is here where we look at the practicality of a concept -- can industry produce it in sufficient quantities, is it supportable under harsh field conditions, and is

it affordable? System acquisition is also where the operator gets involved -- does the system meet operational needs, will it perform as advertised and can the average soldier operate it? To underscore the commitment of the BMD program to the acquisition of theater missile defense, BMDO has budgeted 80 percent of its Fiscal Year 1996 funds for this purpose.

BMD Hardware in the Field

Today, we are making near term improvements to existing air and missile defense systems to enhance their abilities to defend against shorter-range tactical ballistic missiles. In this sense, we are literally making ballistic missile defenses a reality as we speak. As part of this phase of TMD improvement, we have ***deployed*** TALON SHIELD/JTAGS, U.S. Marine Corps HAWK upgrades, and PATRIOT PAC-2 Quick Response Package (QRP). The first of the PATRIOT PAC-2 Guidance Enhanced Missiles (GEM) are being ***delivered***. We have also ***deployed*** the Extended Air Defense Test Best (EADTB), which serves as a critical support tool. Each of these have significantly improved our Nation's TMD capabilities over those that existed during Operation Desert Storm. These upgrades are a direct result of investment in the BMD program and, in some cases, are direct benefactors of our past technology development efforts. I think you will agree when I say we are making great strides in putting TMD "rubber on the ramp" for the warfighter. I would like to provide a quick overview of just a few of these near term improvements.

Talon Shield/Joint Tactical Ground System (JTAGS): These systems use Defense Support Program (DSP) satellite data, newly developed algorithms and upgraded processing hardware -- developed under the BMD program -- to significantly improve the accuracy and timeliness of early warning information of ballistic missile launches to U.S. forces overseas. In October 1994, the U.S. Air Force activated the first Attack and Launch Early Reporting to Theater (ALERT) squadron with an operational version of the BMDO-developed TALON SHIELD system at Falcon Air Force Base, Colorado. The ALERT squadron just recently ***achieved its initial operational capability***. JTAGS, also developed by BMDO, is a complementary tactical mobile DSP ground station for use in the theater. The U.S. Army has

deployed several prototype units overseas to support the warfighter.

HAWK Air Defense System: The U.S. Marine Corps and BMDO have jointly funded improvements to the Marine Corps' HAWK system. The HAWK system has been modified and tested to intercept short-range ballistic missiles. This will represent the only organic TMD capability for the Marines and will provide them with some operational flexibility when Army or Navy TMD assets at not available. Last September, two LANCE target missiles were successfully intercepted by the modified HAWK system in an operational test by Fleet Marine Forces at White Sands Missile Range, New Mexico. BMDO and the Marine Corps jointly funded upgrades and modifications to the TPS-59 radar, the HAWK command and control system, and a communications interface between the two. Modifications to the TPS-59 radar will result in tactical ballistic missile target detection at long ranges and high altitudes. Upgrades to the HAWK missile fuze and warhead enable the system to provide a credible defense against tactical ballistic missile targets. ***Over one-third*** of the active Marine Corps HAWK equipment has been ***modified*** to provide this short-range tactical ballistic missile defense for expeditionary Marine forces. The ***entire fleet inventory will be modified*** with this capability by the end of Fiscal Year 1996.

PATRIOT Quick Response Program (QRP): The PATRIOT QRP was instituted in 1991-1992 and is already ***deployed and operational***. This program, designed to identify and quickly field improvements to address lessons learned from Operation Desert Storm, included upgrades for rapid, accurate fire unit emplacement; a capability to remotely launch PATRIOT missiles up to 12 kilometers from the radar which increases the defended area; and radar enhancements to improve tactical ballistic missile detection and increase system survivability. BMDO funded nearly 60 percent of the QRP program.

PATRIOT Guidance Enhanced Missile: In February of this year, the U.S. Army took delivery of the first PATRIOT Advanced Capability-2 Guidance Enhanced Missile (GEM). The GEM incorporates improvements to the PAC-2 missile receiver to enhance its effectiveness and

lethality against SCUD-class ballistic missiles. With the GEM improvements, existing PAC-2 missiles will significantly increase their defended areas and improve their lethality. We ***will field about 350 PAC-2 GEM missiles*** which will provide the principal improvement to our existing tactical ballistic missile defense capability until PAC-3 begins deployments in Fiscal Year 1998. BMDO funded nearly 90 percent of the GEM program.

Extended Air Defense Test Bed (EADTB): The EADTB provides a BMDO-developed high fidelity, flexible, user-friendly, computer-based simulation tool for traditional air defense experiments with the added complexity of theater missile defense threats. It is oriented to large scale scenarios for system analysis and Cost and Operational Effectiveness Analysis (COEA) support. The system will be capable of analyzing full theater-level scenarios and will permit evaluation of extended air defense systems. Initial node installations are complete at SHAPE Technical Center, the Hague, Netherlands; Advanced Research Center, Huntsville, AL; and Army Air Defense Center, Fort Bliss, Texas. In the Hague, representatives from all sixteen NATO nations can participate, by means of EADTB, in interactive modeling, simulation, wargaming and virtual prototyping of TMD systems in order to determine the best TMD solutions for the alliance.

TMD Systems Currently in the Acquisition Process

Following these near-term enhancements, we have established a set of "core" TMD systems that are currently in the Department of Defense acquisition process. The core includes the PATRIOT Advanced Capability-3 (PAC-3), Navy Standard Missile II Block IVA (Navy Area Defense), and Theater High Altitude Area Defense (THAAD) systems. The variety of scenarios and threat characteristics (maximum/minimum ranges, reentry vehicles, radar cross sections, reentry vehicle temperatures, etc.) and the characteristics of the defended area (military forces, population centers, ports of debarkation, etc.) require complementary systems for complete and cost-effective defenses. Therefore, we are ***developing a core set of systems which will begin deployments by the end of this decade*** and will greatly improve our defense against the existing theater ballistic missile threat. These systems, which are in the acquisition process today, are

benefactors of the technologies we have developed over the past twelve years.

PAC-3: Last year the Department selected the Extended Range Interceptor (ERINT) missile to satisfy the PAC-3 requirement to provide significantly improved capability against theater missile threats. PAC-3 represents a significant upgrade to an existing air defense system to specifically handle stressing theater ballistic missile threats. The selected PAC-3 missile uses hit-to-kill technology to destroy attacking tactical ballistic missiles and was selected principally for its lethality against these missiles, especially those carrying weapons of mass destruction.

The technology for the ERINT, as well as THAAD, missile has its roots in the BMD program. The development of hit-to-kill interceptor technology for TMD systems evolved from the SDIO's Flexible Lightweight Agile Guidance Experiment (FLAGE) technology demonstrations in the mid-1980's. This program originally started in the Army as the small radar homing intercept technology interceptor (SRHIT). Originally designed to test technologies for a point defense system to protect ICBM fields from strategic ballistic missile attack, the proof-of-principle test vehicles demonstrated small, transportable defenses well suited to tactical missile defense. SDIO funded a test series which demonstrated the use of radar seekers and thruster/attitude control rockets required for hit-to-kill guidance against tactical ballistic missiles. In June 1986, a FLAGE hit-to-kill test vehicle intercepted a target that was travelling over 2,100 miles per hour. In May 1987, a FLAGE hit-to-kill test vehicle destroyed a short-range surface-to-surface LANCE missile. The intercept occurred at an altitude of 16,000 feet. This marked an important milestone in the development of hit-to-kill TMD interceptors because the LANCE missile replicated the radar signature and performance of a tactical ballistic missile. Later that year, the ERINT program began as a development effort to refine the hit-to-kill technology.

In November 1993, ERINT scored the first of three successive direct hits on its targets. During this flight test ERINT collided with and destroyed the warhead of a STORM target vehicle. The warhead contained a cluster of 38 pressurized, water-filled containers designed to simulate toxic chemical submunitions. The second flight test in February 1994 pitted the ERINT

against a similar missile carrying a simulated unitary chemical warhead. Again, the force of the impact destroyed the target. These intercepts took place six miles down range and six miles high. The enhanced lethality of ERINT against tactical ballistic missiles, especially those with submunition warheads, was a key element in the selection of ERINT as the missile of choice for PAC-3. Lastly, in June 1994, ERINT completed its third straight successful test flight when it destroyed a drone. The purpose of the test was to demonstrate the accuracy of ERINT's guidance system against a maneuvering air-breathing target, such as a cruise missile. The success of the ERINT program, which built upon a foundation of hit-to-kill technology demonstrations, will bring protection to our warfighters as we begin to field the PAC-3 system in Fiscal Year 1998.

Other improvements to the PATRIOT system that comprise the PAC-3 enhancements will result in: increased firepower and lethality; increased battlespace and range; enhanced battlefield awareness; and improved discrimination performance in the face of challenging countermeasures. Many of the PAC-3 system components are responsible for improving the PATRIOT system and enable it to achieve a hit-to-kill. I would like to highlight just few examples. For instance, the PAC-3 inertial measurement unit (IMU), which serves as the "inner ear" of the missile, sensing attitude and motions, assists in guiding the missile from launch point to where the seeker can "lock" on the target. The ring-laser gyro IMU emerged from the BMD technology program and was specifically designed to be small, lightweight and low-cost in order to be used on missiles. We intend to use this IMU on PAC-3 and THAAD.

Similarly, the PAC-3 attitude control section features 180 small solid rocket motors that provide a much more agile missile than the PAC-2 missile, which relies solely on tail fins to maneuver. This agility translates directly into improved accuracy and lethality of the missile. Again, this specific technology was borne out of the BMD program.

The new ceramic radome for the PAC-3 missile is lighter and less expensive than the older radome flown just last year. Meanwhile, it provides a protective covering for the PAC-3 system

which is more transparent to the system's radar seeker. The ceramic radome is a high temperature, high strength ceramic composite that has improved performance characteristics in every critical area. The PATRIOT system's leading edge technology in electronic components comprise the heart of the PAC-3's radar upgrades. They accomplish three major improvements: first, allowing engagements of stealthier targets; secondly, producing a more lethal intercept and; lastly, improving system reliability.

Navy Area Defense: Modern Navy doctrine requires contributions from combatant vessels to achieve and maintain battlefield dominance "from the sea" for all littoral operations. Sea-basing of TMD allows our Nation to take advantage of the strength and presence of our naval forces. Navy vessels that are routinely deployed world-wide are currently in potential threat areas or can rapidly be redirected or repositioned. The Navy Area Defense program, previously referred to as Navy Lower Tier, represents another cost and operationally effective opportunity for us to upgrade an existing air defense system (as we did with PATRIOT) and give it substantial TMD capabilities as quickly as possible. BMDO and the Navy have been working together to develop an enhancement to the AEGIS/STANDARD Missile air defense system that would provide a tactical ballistic missile defense capability -- similar to that provided by PAC-3 -- from the sea. The Nation has already invested over $40 billion in the AEGIS Weapon System found on more than 50 AEGIS cruisers and destroyers that contain over 5,000 vertical launch system (VLS) cells. The AEGIS ships that will be equipped for a TMD capability will require no additional manning and already have the complete infrastructure for training, logistics, and engineering in place and operating. Hence, we are able to leverage off the Nation's past investment in the AEGIS fleet and provide a substantial near-term payoff in TMD capability.

The Navy Area TBMD program focuses on developing modifications to the existing AEGIS Combat System, which includes changes to the STANDARD Missile, to extend its robust anti-air warfare capabilities to tactical ballistic missile defense. These modifications will enable tactical ballistic missile detections, tracking and engagement with a modified STANDARD Missile II Block IV. This area defense system will provide AEGIS ships the ability to conduct lower-tier,

or endo-atmospheric, intercepts of tactical ballistic missiles. Improvements to the STANDARD Missile, such as development of the infrared seeker, will incorporate technology from past BMD programs. These include seeker component improvements in track processing, aimpoint selection, cooling bottle winding technology, cooling valves and cooling system. The seeker, along with other modifications, will allow the STANDARD Missile to engage tactical ballistic missiles.

Theater High Altitude Area Defense (THAAD): The THAAD system is the centerpiece of the core TMD program. It is designed to engage the full spectrum of theater ballistic missile threats and to expand the footprint of the defended area. The THAAD system is comprised of an interceptor, the TMD Ground-based Radar (GBR), and command and control equipment. THAAD will provide the unique capability for wide area defense against ballistic missiles at higher altitudes and longer ranges with a lethal hit-to-kill interceptor. Neither the PAC-3 nor the Navy Area Defense systems can provide this kind of long-range defense.

The THAAD missile design utilizes various technologies developed in past BMD programs to achieve hit-to-kill accuracy and yet maintain a small configuration well suited to the THAAD operational requirements. The missile consists of a single-stage solid propellent rocket booster motor and a kill vehicle which separates from the booster prior to impact. The booster uses state-of-the-art composite case construction to minimize weight. Such composite materials are derived from the BMD materials and structures program to develop strong, yet lightweight, materials. A deployable flare at the aft end of the booster provides added stability in certain flight regimes. A thrust vector control system is used for attitude control during boost phase. This important component has lineage in SDIO's High Endoatmospheric Defense Interceptor (HEDI) and Exoatmospheric Reentry Vehicle Interceptor System (ERIS) programs. The interstage at the forward end of the booster contains a separation motor which ensures positive kill vehicle separation.

The kill vehicle is integrated into a biconic structure which mates to the booster interstage.

During flyout, the seeker window is protected from the severe flight environment by a two-piece clamshell shroud. The shroud is ejected just prior to seeker acquisition by inflating metal bladders in the nose cone to impart the required separation velocity. Shroud technology, used here in THAAD, has been developed by the U.S. Army under the auspices of BMDO. The seeker window is a rectangular sapphire plate mounted in the forecone. Again, the seeker window technology is a legacy of the seeker windows developed for the HEDI program. The mid-wave infrared seeker is mounted on a 2-axis stabilized platform to isolate the seeker measurements from vibration and other disturbances. The seeker design includes an all-reflective optical system and platinum sillicide staring focal plane array. This sensitive staring focal plane array, which serves as the "eyes" for the THAAD interceptor, emerged from BMD sensor technology efforts over the last ten years. A ring-laser gyro inertial measurement unit (IMU) is mounted on the platform to measure and stabilize the platform motion and serve as a reference for seeker measurements. This IMU -- used in both THAAD and PAC-3 -- was originally developed under the SDIO D-2 hypervelocity projectile program. The IMU is a very low-mass, highly accurate (low drift rate of 3 degrees per hour) system. Throughout the D-2 testing the laser ring gyro IMU proved itself to be very reliable. Aft of the seeker is the bi-propellent divert and attitude control system. An integrated avionics package contains four reduced instruction set computers to provide the processing speed required for hit-to-kill guidance.

The radar element (TMD-GBR) in the THAAD system meets an immediate requirement for a more capable wide-area defense radar in the theater. It provides surveillance and fire control support as an integral part of the THAAD system, and cueing support to lower-tier systems such as PATRIOT. The TMD-GBR utilizes state-of-the-art radar technology to accomplish its required functions of threat attack early warning, threat cueing, and launch and impact point estimation. In particular, TMD-GBR will be able to provide a capability to perform threat classification against tactical ballistic missiles, and kill assessment after intercept.

The Theater and National Missile Defense Ground-based Radar programs have evolved using technologies developed by SDIO, BMDO, and ARPA, as well as from commercial off-the-

shelf equipment. The common core software processing programs resident in the TMD and NMD radars were developed in the SDIO program. The Terminal Imaging Radar (TIR) program, initiated under SDIO, developed imaging and discrimination techniques, and the radar scheduler functions. These are some of the most complex functions a BMD radar system must perform. In addition, SDIO and BMDO have funded several radar component technologies used in our ground-based radar systems. These include advanced X-band Solid-State Transmit/Receive (T/R) modules and waveform generators, and the Lexington Discrimination System used by MIT/Lincoln Labs to validate real-time imaging and processing algorithms. Our technology program also has been the cornerstone of radar survivability initiatives in the area of anti-radiation missile countermeasures and camouflage, concealment and deception technologies for TMD-GBR. BMDO has also invested in the 10 watt and 20 watt T/R module program that evolved out of advances made under the ARPA Gallium Arsenide Monolithic Microwave Integrated Circuit program.

The NMD and TMD GBR programs also make maximum use of commercial off-the-shelf equipment. The prime power unit is composed of commercial generators and alternators. The electronic equipment unit uses commercial computers and the massively parallel processor systems for signal and data processing, and commercial high speed data recorders.

Battle Management/Command, Control, Communications & Intelligence: Establishment of effective BM/C3I for TMD is one of the most important functions of the BMDO and is essential to fully exploit the full capabilities of the core TMD weapons systems. Successful BM/C3I increases the time available to engage hostile missiles, increases the effective allocation of interceptors, and reduces the potential for "leakers" -- attacking missiles that penetrate our defense. It is truly the element which most solidifies the jointness of theater missile defense. Within the context of putting BM/C3 "rubber on the ramp," we have successfully demonstrated the timely digital dissemination of launch warning into theaters, established message standards critical for the development of the Joint Data Net, and demonstrated prototype command and control centers for TMD. This Fiscal Year we will see significantly increased activity in BM/C3I

as we extend the early warning demonstrations into fully operational systems, implement message standards in developing Command and Control (C2) host platforms, and support integration of JTIDS terminals into TMD C2 centers and C2 systems, such as the Air Force Contingency Tactical Air Planning System (CTAPS) and the Navy Joint Marine Command Information System (JMCIS). As always, BMDO will seek to minimize costs by taking advantage of planned theater air defense BM/C3I improvements and encouraging joint solutions for joint requirements wherever possible.

Advanced Theater Missile Defense Capabilities

BMDO is also developing advanced TMD capabilities. This includes the Navy Theater Wide Defense (Navy Upper Tier); Medium Extended Air Defense System (MEADS) -- which you will recall as Corps SAM; and Boost Phase Intercept (BPI). These systems are currently in the concept exploration phase and a decision to proceed with further development will be based on a rigorous acquisition decision process. For the purpose of today's hearing, I would like to just briefly discuss how these programs take advantage of past BMD technology developments in order to provide improved TMD capabilities by addressing specific military requirements.

Navy Theater Wide Defense: The Navy Theater-Wide Defense program will provide an upper-tier Navy tactical ballistic missile defense capability. The Navy Theater-Wide system, which could be among the first deployed missile defense systems in a regional crisis, could provide extensive areas of protection. Specifically, Navy Theater-Wide could provide critical wide area defenses early in a conflict -- allowing U.S. and/or coalition forces to fight their way into a theater of operations while under the protective cover of missile defenses. This program is the second evolutionary stage of the joint BMDO-Navy TMD program and will build on the baseline Navy Area Defense (lower-tier) system. The Navy Theater-Wide system will use an interceptor with exoatmospheric capability, such as the BMD technology program-developed Lightweight Exoatmospheric Projectile (LEAP), or a marinized version of the THAAD interceptor missile.

BMDO and the Navy have demonstrated the integration of BMD-developed technologies into existing missiles. The LEAP and Advanced Solid Axial Stage (ASAS), both developed under the SDIO and BMDO programs, were recently flown aboard modified TERRIER missiles during tests at sea.

The LEAP is a miniaturized kinetic kill vehicle that, once delivered on a path towards the ballistic missile target, detects, acquires, and homes in on that target. LEAP destroys the target missile by force of impact. Efforts to pursue advanced, lightweight, low-cost components for space-based and ground-based ballistic missile defense interceptors have generated significant progress in the LEAP program over the past few years. The LEAP program has succeeded in developing several miniature kill vehicles all weighing under 20 kilograms. These LEAP vehicles have undergone a series of hover tests to demonstrate their abilities to "fly" and, using optical seekers, acquire and track ballistic missile targets. (LEAP technology development is discussed in further detail in the Advanced Technology section.)

The ASAS is a state-of-the-art space rocket motor that provides the LEAP with its final axial boost towards the target. The ASAS program was initiated in the late 1980's to support the Space-based Interceptor program with a robust, storable solid axial propulsion system. The focus of the ASAS program was to minimize weight and cost, while maximizing performance. By 1992, technology development was completed and all that remained was integrated stage testing. Due to funding constraints, the program was temporarily stopped. However, the LEAP program resumed program funding since the ASAS technology provided an upper stage capability suitable for the Navy LEAP experiments. The combination of the Navy's STANDARD Missile and the ASAS provides sufficient propulsion to boost the LEAP kill vehicle beyond the atmosphere to intercept longer-range theater-class ballistic missiles far from their intended targets.

A cost and operational effectiveness analysis (COEA) is in progress to assess interceptor alternatives. The Theater-Wide Defense interceptor will be integrated into the existing AEGIS Weapon System that will be modified for the Navy Area Defense (lower tier) program.

Boost Phase Interceptor: Ballistic missiles, regardless of their range, are best targeted and countered during their boost-phase. The ability to intercept a missile while boosting provides a deterrent to launch or, in the event of a launch, will destroy a target while still over enemy territory potentially allowing the debris to fall back on the aggressor. BMDO and the Air Force, supported by the Army and Navy, are currently executing a kinetic energy boost-phase interceptor program to demonstrate the concept.

Critical to the BPI program is the development of the advanced kill vehicle in the BMDO Atmospheric Interceptor Technology (AIT) program. The AIT program has its roots in the successful HEDI program which demonstrated the principle of hypersonic target acquisition and tracking in the atmosphere Leveraging off past investments in cooled window technology, lightweight thermally protected structures, strapdown seekers, miniaturized electronics, and lightweight gel propellant divert and attitude control systems provide a lightweight kill vehicle with the capability of performing hypersonic, hit-to-kill intercepts of ballistic missile targets in the endoatmosphere. Combining this kill vehicle with the ASAS rocket motor technology from the LEAP program could permit the high velocity flight at low altitudes necessary for the BPI system.

Benefits From Participation in the ARROW Program: The United States is continuing a cooperative BMD program with Israel through the Arrow Continuation Experiments (ACES) Program. As demonstrated graphically during the Gulf War, Israel is highly vulnerable to attack from tactical ballistic missiles due to its close proximity to potential aggressor states in the Middle East. Consequently, the development of highly capable missile defenses is a priority for Israel, and is embodied in the Arrow missile program. The U.S. has been a partner in the development of the Arrow missile because it is in our national interest that Israel acquire a robust missile defense capability.

As the Arrow System moves toward deployment, the U.S. has continued to invest in the program because of the valuable technical input that the Arrow program is making to our own developing TMD systems. Some examples of important technology infusion from Arrow include:

lethality data applicable to the Navy Area Defense (lower-tier) program on the effectiveness of blast fragmentation warheads against chemical bulk and submunition weapons; development of optical window technology applicable to both THAAD and Navy Area Defense programs; hypersonic test data that helps validate U.S. computational fluid dynamics codes being used by the THAAD and Navy Area Defense programs; data from stage separation at high velocities and dynamic pressures that benefits the THAAD program; and interoperability development that will allow synergistic operations of Arrow with U.S. TMD systems, if required in future contingencies.

National Missile Defense Programs

The major technology breakthroughs of the first four years of the BMD program proved the feasibility of strategic national missile defense and led to a decision to move specific systems into the Department's acquisition process in June 1987. The first system architectures consisted of boost, midcourse and terminal sensors, space- and ground-based interceptors, and battle management/command, control, and communications (BM/C3). It relied on kinetic energy weapons and was known as Phase I. Phase II and subsequent phases would draw from continuing technology advances, particularly in directed energy. The primary objective of Phase I was to enhance deterrence by denying Soviet planners confidence that they could execute any successful war plan based on attacking the United States with ballistic missiles. Phase I was well into the demonstration/validation phase of acquisition as the decade drew to a close. But the threat started to change -- the Soviet Union was in the process of dissolving and theater ballistic missiles were proliferating. This led to a new architectural concept known as Global Protection against Limited Strikes, or GPALS. GPALS focused on achieving worldwide defensive capability against attacks of limited scope. It retained most of the elements of the Phase I architecture, and moved several theater systems and the space-based weapon, known as Brilliant Pebbles, into acquisition. Reassessment of the threat as part of the Administration's Bottom-Up Review led to a decision to transition all ground-based NMD systems from formal acquisition to a technology readiness program (TRP). The objective of the TRP is to mature the system elements and maintain a readiness posture to respond to future strategic threats against the United States. NMD system

elements include the Ground-based Interceptor, Ground-based Radar, the Space and Missile Tracking System (SMTS) midcourse sensor, and BM/C3. I would like to summarize the progress we have made in each of these programs and in developing and maturing their ability to deliver future military capability. I will also describe a major investment we have made for the testing of the NMD system.

NMD Ground-Based Interceptor (GBI): Our Ground-based Interceptor program is developing, demonstrating, and validating the technology and components for a state-of-the-art, cost effective, lightweight, non-nuclear, hit-to-kill missile to intercept and destroy ICBM reentry vehicles targeted against the United States. This program consists of two efforts: the Exoatmospheric Kill Vehicle (EKV) and the Payload Launch Vehicle (PLV).

Our EKV efforts concentrate on the difficult technical issues of the interceptor front end. Early system objectives for research and development are to expand the engagement envelope through improvements to on-board sensor acquisition range, target selection capability, and divert velocity. These improvements will require iterating design, fabrication, and testing over the next three to four years.

Our PLV efforts take advantage of readily available and proven booster stacks (decommissioned Minuteman II second and third stages) for EKV flight testing at the U.S. Army Kwajalein Atoll missile range (USAKA) in the Republic of the Marshall Islands. This low cost approach allows us delay development of an optimized GBI booster, and focus our efforts and investments on the kill vehicle's development.

The GBI program has considerable historical legacy from over 20 years of technical efforts on non-nuclear exoatmospheric hit-to-kill interceptors. The U.S. Army's Homing Overlay Experiment (HOE) first demonstrated the concept of exoatmospheric hit-to-kill. The program, which spanned the period of Fiscal Years 1978 to 1984 consisted of four flights tests and demonstrated the principle of hit-to-kill using a very capable, albeit expensive, heavy and

sophisticated kill vehicle. A successful intercept was demonstrated in June 1984. [1]

The Exoatmospheric Reentry-vehicle Interceptor Sub-system (ERIS) program followed the successful HOE test series. The ERIS program demonstrated the feasibility of using low-cost, high-performance, supportable components. The program culminated in 2 flight tests. The first in January 1991 met all test requirements including a successful hit-to-kill intercept. The second in March 1992 was partially successful. Overall, the ERIS program was considered successful and achieved its objective of demonstrating our ability to intercept strategic ballistic missile targets with non-nuclear interceptors. However, during such technology demonstrations, while we strive to meet our test objectives of successful intercepts, it is important to realize that we learn much from our failures. Detailed analysis of telemetry data and test results teach us how to improve our technology, system integration and test operations.

In addition to the direct legacy of the successful HOE and ERIS demonstration programs, the GBI program has also benefitted from technologies and lessons learned resulting from the HEDI, Brilliant Pebbles and LEAP programs. In addition, component technology developments from the BMD technology program have "fed" the GBI program. Guidance and control technology development efforts, such as the Interferometric Fiber Optic Gyroscope (IFOG) Inertial Measurement Unit, have resulted in lighter-weight, lower-cost guidance and control units while improving overall performance characteristics. High performance, radiation hardened electronics have been developed which demonstrate high throughput, low power consumption,

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[1] In the Summer of 1993, HOE became the center of controversy when the New York Times charged that the test had been "rigged" to deceive the Soviet Union and in the process also deceived the U.S. Congress. An investigation, conducted under the direction of Secretary of Defense Les Aspin, concluded that although a seperate deception program was indeed in place in the Department of Defense, the SDIO and Army test had not been rigged to distort the results achieved in the HOE test. These findings were later confirmed by an independent review completed by the GAO. (see: United States General Accounting Office, Ballistic Missile Defense: Records Indicate Deception Program Did Not Affect 1984 Test Results, 7/94, GAO/NSIAD-94-219.

and fault tolerance characteristics necessary for GBI applications. Focal plane array technologies, such as PET and SHIELD, have demonstrated our ability to produce long wave, and very long wave (LWIR and VLWIR) detectors for use in GBI sensors. Materials and structures technology development, such as Beryllium mirrors, has resulted in the development of improved structural components to reduce GBI kill vehicle weight and improve performance.

Another example of direct component legacy from BMD is the Signal Processing Packaging Design (SPPD). It was initiated to address the requirement for the Space-based Interceptor (SBI) program, which needed a lightweight, compact, high throughput signal/data processor. The SPPD program was designed to provide a very high throughput (300 to 400 MOPS), very low mass (75 grams), high density processor. The program was completed in Fiscal Year 1992, on schedule, with delivery and testing of two prototypes for approximately $6 million. This technology has subsequently been incorporated into one contractor's concept for the Exoatmospheric Kill Vehicle for the NMD Ground-based Interceptor.

Without the investments we made in these programs, and the critical knowledge gleaned from these efforts, our current GBI efforts would be much further from fruition. For instance, interceptor technology developments over the past ten years have allowed a size reduction from 2500 kilograms (HOE) to 160 kilograms (ERIS) to 45 kilograms (EKV) in order to perform similar hit-to-kill intercept missions. Since weight and cost for a complete weapon system are directly proportional, BMD interceptor costs have become manageable.

NMD Ground Based Radar (GBR): The NMD Radar Technology Demonstrator (NMD RTD) provides the NMD System with a prototype element test article for use during integrated flight testing. The NMD RTD is a scaled version of a deployable NMD GBR. This Radar Technology Demonstrator design converts the TMD-GBR demonstration/validation radar hardware to a larger, limited field-of-view radar which will have sufficient range to support NMD requirements. It will provide surveillance and fire control support during integrated flight testing of the EKV with in-line BM/C3 processing and control.

The NMD RTD directly leverages progress from the TMD-GBR program. The RTD utilizes state-of-the-art radar technology such as solid state transmit and receive modules, data processing hardware, beam control and tasking software, and discrimination and kill assessment algorithms and software developed under the TMD-GBR program. This program structure, by leveraging from TMD developments, provides a cost-effective method for resolving the NMD-GBR critical issues and allows us both flexibility and limited liability as this program evolves.

Over the last 10 years the NMD Ground Based Radar (GBR) program has evolved significantly. Our efforts began with an X-band, phased array radar development program in the mid-1980's. This program, the Terminal Imaging Radar (TIR) program, began developing software operations and applications processing and radar imaging techniques for NMD radar. However, a testbed radar was needed and the GBR-X program was started in the late 1980's. The GBR-X provided for the functional demonstration and validation of the midcourse radar requirements, and formed the basis for growth and technology infusion to a deployable system. The program completed its Critical Design Review, 40 percent of its software built, and procured several long lead items before it was canceled in 1990.

The software techniques developed under the TIR and GBR-X programs now make up the common core of application and operations processing software used in the current "Family of Radars" program. In 1991, the program was restructured into the Family of Radars program which developed radars for both the NMD and TMD, based on common software and hardware. In 1992, the Family of Radars demonstration/validation contract was awarded which included the NMD-GBR demonstration/validation (termed the GBR-T) at USAKA. In 1993, the GBR-T completed its Preliminary Design Review, and 60 percent of its software built, before the program was terminated following the guidance of the Bottom-Up Review. However, the guidance provided for continued technology development to resolve the long pole issues associated with deploying an NMD-GBR.

In 1994, the technology development program was expanded into the National Missile

Defense Radar Technology Demonstrator (NMD-RTD) program. This program continues to resolve the long poles associated with deploying an NMD-GBR which includes algorithm development, real-time software and hardware-in-the-loop simulations, and finally a radar technology demonstration at USAKA. The radar technology demonstration, upon completion of the TMD-GBR demonstration/validation program, takes existing TMD-GBR demonstration/ validation hardware and refurbishes it into a larger, limited-field-of-view radar with sufficient ranges to support NMD requirements. The NMD-RTD is a Solid State, X-band, phased array, single face/circular field-of-view radar with a 2,000 kilometer-plus range.

In January 1995, the NMD-RTD completed its Systems Requirement Review. To date approximately 80 percent of its software has been developed. The TMD-GBR demonstration/ validation system is assembled and currently undergoing near field testing at the contractor's facility. This is the same hardware and software being utilized by the NMD-RTD program. In addition, site preparation at USAKA has begun for future NMD-RTD testing.

Battle Management, Command, Control and Communications (BMC3): BM/C3, as it applies to the National Missile Defense, consists of three distinct activities: battle management software development; Command Center design and tools for the user to exercise human-in-control; and Communications support to provide essential and timely information.

Investment in NMD BM/C3 has produced functionally and technically correct software code for ballistic missile defense battle management. The code has been used for demonstrations of missile defense using real data and operating at geographically distributed locations under very dynamic field conditions. This code supports the resolution of technical issues, such as sensor data fusion, discrimination, and communication management. The investment in software serves as the basis for the TMD battle management, as well as for the development of operational software for NMD. This approach has also supported the resolution of critical technology issues such as software reuse. Investments in command and control have produced designs and prototypes for command decision aids that allow the users of our NMD systems

(USCINCSPACE and other regional commanders) to manage the effective engagement of hostile ballistic missiles. The BM/C3 demonstrator at the National Test Facility (NTF) has been used to refine the NMD Concept of Operations (CONOPS). In the area of communications, we have focused on identifying all potential commercial sources of communications support, and in the production of a working prototype of a NMD communication suite. The effort has been highly successful in that we have identified a communications architecture that will depend on only a limited amount of unique development.

National Test Facility: From its earliest beginnings, SDIO recognized the challenges inherent in testing a system that would defend against nuclear missiles. Live fire tests, the "proof of the pudding" for most acquisition programs, were just not "in the cards" for strategic missile defense systems. A first-class modeling and simulation facility - the NTF - has been established near Colorado Springs, Colorado, to address this need. The NTF is the hub of the National Test Bed, a distributed network of computers and models which can run the most complicated simulations of national and theater defense systems. One of the major nodes of the test bed that many of you may be familiar with is the Advanced Research Center in Huntsville, Alabama. These distributed facilities can integrate actual hardware in what we call hardware-in-the-loop testing. We have also developed the capability to run very sophisticated wargames at the NTF. It is here that USCINCSPACE and his staff can explore their information and decision aid needs for managing the BMD battle. The NTF is a magnificent facility with tremendous capabilities for BMDO and other DoD customers. Past BMD investments in this area have made it so.

Space and Missile Tracking System (SMTS): The Space and Missile Tracking System (SMTS) -- previously known as Brilliant Eyes, and now the Low Earth Orbit (LEO) component of the Air Force's Space Based Infrared System (SBIRS) -- is a passive sensor element designed to perform ballistic missile boost and post-boost phase acquisition and tracking and midcourse phase tracking and discrimination in the NMD and TMD Systems. It is derived from earlier SDIO development efforts of the Space Surveillance & Tracking System (SSTS). In addition to capitalizing on SSTS technology, it also takes advantage of past BMD programs, such as Brilliant

Pebbles and Ground Based Surveillance and Tracking System (GSTS) technology investments, to optimize system performance for the numerically reduced threat we currently face.

The BMD program has been working on space-based infrared tracking for many years. We have focused on technology development, phenomenology data collection, and experiments supporting system development. In 1984, development of the Boost Surveillance and Tracking System (BSTS) was started as part of BMD. BSTS was to serve as a replacement for the current missile early warning system, the Defense Support Program (DSP), which had been providing space-based infrared data since the early 1970's. BSTS was also to serve as the first surveillance tier of a BMD system. The second surveillance tier was to be the SSTS, more recently referred to as Brilliant Eyes and now as the Space and Missile Tracking System, which would provide midcourse tracking and target discrimination. SDIO moved out quickly with these programs, progressing the designs and performing ground tests and demonstrations. However, changes in threats and ballistic missile defense architectures, as well as increased interest in developing for the U.S. Air Force a replacement for DSP, resulted in the transfer of the BSTS program to the Air Force as the Follow-on Early Warning System (FEWS). FEWS evolved into the Alert, Locate and Report Missiles (ALARM) program, which was then incorporated as the high component of the current SBIRS program. The SSTS program evolved into the Brilliant Eyes program, recently renamed the SMTS, with scaled down performance requirements but very similar sensor designs.

In addition, SDIO pursued through the U.S. Army a ground launched probe, called the Ground-based Surveillance and Tracking System, which used passive infrared sensors and served as a gap filler for SSTS in the face of a massive ICBM attack. This program was terminated due to changes in the threat and the system architecture. But the passive sensor development progress that GSTS demonstrated greatly facilitated SMTS development. For example, the light-weighted beryllium optics fabricated and tested under the GSTS program are very similar in size and optical prescription to what the SMTS will use. These state-of-the-art optics demonstrated the producibility of advanced beryllium optics necessary for SMTS. Another example is the

sophisticated tracking and discrimination algorithms and testbed development. The GSTS sensor contractor, Hughes, is one of the SMTS sensor subcontractors and the tracking and discrimination expertise in the Army and MIT/Lincoln Laboratory continued to be utilized by the SMTS program office.

The SMTS program has also utilized previous technology miniaturization developments from the Space-based Interceptors program. Processors and cryocoolers developed under the Brilliant Pebbles program are baselined by one of the SMTS contractors in their objective system. Other experiment and testbed developments, which add to the general advancement of passive infrared sensor development, include the Airborne Surveillance Testbed, Midcourse Space Experiment, Spatial Infrared Imaging Telescope (SPIRIT) series, and others which provide integration lessons learned and data to help steer future programs.

The NMD program elements are currently postured to be able to reenter the formal DoD acquisition process, if the ballistic missile threat to the U.S. emerges. The engineers and scientists who have analyzed, developed, built, and tested hardware and software under these previous programs bring along essential knowledge and "know how" to attack our current issues and solve our problems for the NMD program. These people and knowledge are vested in our military, civilian, and industrial team. Based on our combined technology and systems developments, I am confident that we can deliver a significant military capability by the early part of the next decade if a decision to deploy is made. This defensive capability is only possible because of our steady investment in ballistic missile defense technologies and systems.

Advanced BMD Technology Programs

The BMD technology program has served us well over the past twelve years. We have witnessed rapid development of critical component technologies. As you have seen today, many of these technologies are now infused in our current acquisition programs. During the past twelve years, we have invested in sensors and detectors; guidance and control; computers and signal processors; communications; power; propulsion; and materials and structures technologies. All of

these areas have witnessed tremendous technical advancements based on our collective investment in BMD. We have also focused our efforts on developing advanced technology concepts which could provide clear technology answers to tomorrow's threat developments.

LEAP Technology: The goal of the LEAP program, as originally conceived and begun in 1986, was to develop and integrate the world's first advanced, miniature kinetic energy interceptors and associated technologies; and then to demonstrate their capabilities through extensive ground testing. The technologies were intended to enable development of ground-and space-based systems in support of the then-proposed Strategic Defense System architecture. Although aggressive design objectives were established, the original design goals did not necessarily evolve from stringent system requirements. Instead, near-term vehicles were developed to demonstrate the validity of fully integrated miniature interceptors and to represent a step on the path towards an operational KKV system. Because of this flexible development approach, even though the missile defense architecture has changed in response to the changing global environment, the LEAP program has been able to maintain a robust, supporting technology focus.

Over the past ten years, the LEAP program has achieved dramatic successes in the development of advanced interceptor technologies and in the reduction of interceptor size and weight. During the course of the program, BMDO demonstrated important, new manufacturing techniques for LEAP. Tremendous advances have been made in the process of welding small, high-pressure-tolerant tubing and tanks; precise fabrication and machining of 3-D carbon-carbon thrust chambers and complex metallic/composite components; the creation of fast-response, miniature valves and nozzles; and the manufacturing of compact, high-density electronics.

The LEAP program has progressed from a series of highly successful hover tests at BMDO's National Hover Testing Facility at Edwards Air Force Base, California. These hover tests allowed the completely integrated LEAP vehicle to lift itself off of a test stand and hover autonomously in free flight using its divert and attitude control system propulsion systems. While

in unencumbered free flight, the LEAP acquired and tracked a scaled infrared target and performed a series of maneuvers as dictated by the particular objectives of specific tests. Following the successful hover test series and initial integration flight experiments with modified U.S. Navy TERRIER missiles, the LEAP program has become a candidate for the Navy Theater-Wide Defense program, which was discussed earlier.

Advanced Interceptor Technology: Patterned after the LEAP development strategy, the AIT program was initiated four years ago to address the kill vehicle design requirements of operating within the atmosphere (below 70 kilometers) at high velocities. This strategy has resulted in a robust kill vehicle technology development program that will support future TMD requirements to counter the potential evolution of the threat to enhance performance. AIT kill vehicles expand on the legacy of lightweight integrated vehicle technologies developed in the LEAP program and hypersonic atmospheric ballistic missile target acquisition and tracking technologies developed in the HEDI program. These kill vehicles incorporate cooled windows, strapdown seekers, miniaturized electronics, thermally protected structures, and lightweight gel propellant divert and attitude control systems to provide the capability to perform hypersonic hit-to-kill intercepts of ballistic missiles in all phases of their flight trajectories in both the exo- and endoatmosphere. The program has completed cooled window development and fabrication, window aero-thermal testing based on component technology investments in 1990. Seeker detailed designs have been completed and prototype seeker fabrication has been initiated.

Directed Energy: The BMD program has demonstrated most of the key building blocks needed to build a deployable space-based laser (SBL), which represents one of the most mature of our advanced technology concepts. The space-based chemical laser program was initiated by DARPA in the late 1970's and was transferred to SDIO in 1984. Each of the SBL subsystems has been successfully demonstrated with hardware that is traceable and scalable to an operational system. The high-energy beam generator, named Alpha, has demonstrated megawatt-class lasing in numerous tests beginning in 1991 and currently performs at near-weapons class efficiency. Beam control and telescope technologies were demonstrated in the Large Optics Demonstration

Experiment (LODE) in 1987 and in the four meter diameter Large Advanced Mirror Program (LAMP) in 1989. Since then, improved mirrors and optics have been tested. The high-energy beam LAMP mirror is the largest mirror built for use in space -- the previous record is Hubble's 2.4 meter mirror. The LODE program has developed a beam control system for maintaining the brightness and stability of the high power beam. High performance components for the Acquisition, Tracking, Pointing and Fire Control (ATP-FC) system have been fabricated and successfully tested.

A space experiment named Relay Mirror Experiment (RME), launched in February 1990, successfully demonstrated critical pointing and tracking technologies for both space-based and ground-based elements of Directed Energy Weapons (DEW) concepts. Over the course of months, in consistently successful relay experiments, sensors aboard the orbiting RME spacecraft simultaneously tracked two independent ground beacons, and the orientation of a 60 centimeter diameter flat mirror was controlled to reflect a laser beam transmitted from one beacon site to a remotely located target board at the other beacon site. This demonstrated high pointing accuracy, laser beam stability, and long-duration beam relays. The RME experiment provided a significant contribution to gaining confidence from the design of target acquisition subsystems for DEWs.

Building on past accomplishments and investments, BMDO's Directed Energy program continues the process of integrating high-power chemical laser components and technologies developed over the past ten years specifically for accomplishing the boost-phase intercept mission from space. In the Alpha Lamp Integration (ALI) experiment, the existing megawatt class Alpha laser, the 4 meter LAMP primary mirror, and beam alignment and control technologies are being integrated for a ground demonstration of a complete high energy laser beam train. While not a fully operational system configuration, ALI will demonstrate the integrated performance of near full scale SBL subsystems. ALI subsystems are, in fact, fully scalable and traceable to those required to destroy ballistic missiles during their vulnerable boost phase, prior to their ability to maneuver, release decoys, or deploy multiple chemical, biological, or nuclear munitions. The ATP-FC program will, due to funding reductions in the Fiscal Year 1995 Defense Authorization

Bill, close out in Fiscal Year 1995. Component technology efforts are currently focused on demonstrating the high precision, inertial reference unit and the laser illuminator needed for ATP. Together, ALI and ATP successes would have led to a start on an operationally configured, fully integrated ground demonstration of a high energy laser system.

Throughout the BMD program significant advances have been made in the state-of-the-art for Free Electron Laser (FEL) and Neutral Particle Beam (NPB) technologies. These efforts have been terminated, however, as their military applications have sharply decreased with the changed world environment and the diminished strategic nuclear threat.

Added Benefits from BMD Technology Investments

I would like to take a moment to describe our accomplishments in an area where SDIO and BMDO have perhaps the best record in the Federal government. This is our success in "spinning off" many of the fruits of our excellent research programs into commercial, civilian, and other military applications. We have had an aggressive technology transfer program for over eight years now, and our record of success is well documented in our report to Congress.

SDIO and BMDO have pushed the state-of-the-art during the last 10 years in sensors, navigation and guidance, propulsion, electrical power, and communications. These advances have resulted in more than order-of-magnitude improvements in performance, weight, volume, and efficiency for these systems. These successes have not gone unnoticed by the Services and other Defense Agencies. The Air Force and the Airborne Reconnaissance Office have shown great interest in the BMDO-developed laser satellite communications system. The Army has leveraged our investment in electric guns of various types for their electric armaments program. New infrared detectors using novel materials, like indium antimonide and gallium arsenide quantum wells, promise to reduce the cost of infrared sensors by more than an order of magnitude over today's cameras, reshaping the entire military sensor and seeker market. We have shrunk the size and weight of inertial measurement units for navigation to less than a tenth of the 1983 state-of-the-art, meanwhile improving their performance. We invested in revolutionary technologies like

wide bandgap semiconductors, multi-chip modules, artificial diamond films, and all-optical communications networks using wavelength division multiplexing years before ARPA started major programs in these areas.

Through our outreach efforts, we have also established working relationships with many non-DoD government departments who wish to exploit our advanced technology for other applications. For example, we work with the Department of Health and Human Services using our image processing expertise for improving digital mammograms. We are presently talking with the Department of Transportation about highway safety and traffic monitoring using our sensors and laser radar technology. We have a long-standing technology transfer relationship with NASA, as was recently highlighted by the successful transition of our revolutionary CLEMENTINE deep space satellite technology to their small satellite program. Recently, we have agreed to a demonstration of our advances in multi-level computer security for the Small Business Administration.

Most of our efforts in technology transfer, however, are focused directly on the private sector, predominantly the small business entrepreneur. Since our technology transfer program began in 1985, SDIO and BMDO technology have contributed to 187 new products commercially available today, 34 new companies which have spun off to bring new products to the market, 289 patents granted with 195 more pending, and 356 new ventures of various types -- for example, strategic alliances, licensing agreements, partnerships, or cooperative agreements -- have formed. As best as we can track, these companies have raised over $200 million in matching private capital. Seven of these companies have gone public with a market valuation today of $400 million.

This level of achievement is possible because we consider the potential market as a factor in our selection of what missile defense technology to sponsor. Why is this important to BMDO? It will take about five to ten years for many of these new innovations to be adopted by military systems -- far too long for most companies to wait to become profitable. If we want our

successful inventors and engineers and their technology to be around when we need them most, they must become commercially viable to other customers. Commercial success today ensures defense technology availability tomorrow. In addition, the job creation and taxpayer return on investment in missile defense technology resulting from our technology transfer program represents an added bonus for BMDO and the Nation.

The costs for BMDO to support such an aggressive technology transfer program is surprisingly modest -- we spend less than a tenth of one percent (0.1%) of our annual budget on this effort. We have fine-tuned the process of successful technology transfer without diverting substantial funds from our prime mission, developing effective and affordable missile defenses for the country. At this point, I would like to present three specific examples of successes that small companies have had in the marketplace based on missile defense research sponsored by SDIO and BMDO.

SatCon Technology Corporation, of Cambridge, Massachusetts, received BMDO funds to develop vibration control technology to improve the precision of BMDO tracking and pointing systems. They then combined this vibration control with magnetically levitated bearing technology to eliminate vibration and reduce friction in flywheel energy storage devices, compressors, and other rotating machinery. SatCon aggressively pursued commercial markets with their military technology through several joint ventures. It entered a joint venture with Advanced Medical Systems, Incorporated, to develop, manufacture, and market an advanced heart pumping system used for cardiovascular circulatory support and hemodialysis. SatCon also teamed with Chrysler Corporation to develop an innovative drive train and advanced power steering systems using its bearing and vibration control technology. These systems will be tested in Chrysler's high-performance race cars soon. SatCon also joined with Mainstream Engineering Corporation, another small business, to develop a high-speed compressor with a motor that rides on frictionless magnetic bearings. This compressor could be run directly off an automobile's electrical system, removing mechanical drag from the main engine and substantially improving mileage, while eliminating the need for chloro-fluorocarbons in the auto's air conditioning.

Starting with six employees in 1986, SatCon has grown to 120 today. The company went public in 1993, raising $8.8 million in an Initial Public Offering and an additional $14 million since. Annual revenues are now over $20 million.

In response to a BMDO need to view missiles, decoys, and battlefield deployments in three dimensions, Reveo, Incorporated, of Hawthorne, New York, devised a monitor for producing 3-D visual displays. Known as Multi-Mode Stereoscopic Imaging, this technique produces high-quality color stereo pictures for electronic video, computer graphics and other display formats at a competitive price. The technology produces hard-copy, display, or projected images of both still and moving pictures, yet can be viewed from any angle with special glasses or at a given position without glasses. Reveo spun-off a subsidiary, VRex, Incorporated to commercialize its 3-D technology for entertainment, advertising, training and simulation, medical diagnostics, and computer-aided design. At the 1993 COMDEX show, VRex introduced the world's only 3-D notebook computer, winning the "Best of COMDEX 93" award from BYTE magazine. VRex is adding other 3-D stereoscopic devices to its product line and plans to develop a family of stereo films and film processing products. Reveo holds five patents with several more pending. It has grown from six employees in 1991 to 40 today, and anticipates $5 million in commercial sales in 1995.

BMDO funded electromagnetic high-force actuators, or HFA's, at Aura Systems, of El Segundo, California, to test our rocket thrusters on LEAP projectiles. Aura has exploited this technology to construct the Interactor™, a vest used in virtual reality systems to provide physical sensations corresponding to what is happening on the video screen, adding another dimension to existing visual and auditory stimuli. The Interactor received an "Innovation 94" Design and Engineering Award from the Electronics Industry Association. Aura is applying HFA technology to electromagnetic valve actuators to replace cam shafts, rocker arms, and push rods to open and close engine valves. This will result in an engine which produces more horsepower, uses less fuel, and produces lower levels of pollutants than today's engines. Finally, Aura has entered into a joint venture to manufacture HFA-driven audio speakers which produce 6 times less harmonic

distortion and no perceptible magnetic interference at 2/3 the weight of speakers today. Aura Systems was founded in 1987, and now employs over 200 people. It has 34 U.S. patents in hand or pending in electromagnetic technology.

I think our success in technology transfer -- to other military programs, other Federal agencies and the commercial sector -- is something in which we should all be proud.

The Legacy of SDI/BMD: Making Ballistic Missile Defenses a Reality

Our investment in missile defense programs for the past twelve years has paid significant dividends. The BMD program has advanced the state-of-the-art of a wide range of technologies that are essential to missile defense and important to other segments of defense and to industries in the commercial sector. Investment in BMD has enabled the program to accomplish what it was chartered to do: demonstrate that ballistic missiles could be detected, tracked, and destroyed by missile defense weapons. This accomplishment has been achieved by a focused and sustained effort to identify the concepts and technologies required to defend against ballistic missiles, rigorous testing of those technologies, integration of technologies into defensive systems, and refinement of those systems to make them affordable and practical. **We are now at the point in time where we can field that which we have proved**. Our investment in missile defenses has seeded a systems development program that is already putting real, improved hardware into the hands of the warfighter. As my Air Force colleagues like to say, today we are putting "rubber on the ramp" for missile defense systems.

Taking the long view, yesterday's investments in BMD have made these developments possible. Today's reoriented missile defense program is tailored to the future defense needs of our country. Building upon a strong foundation of earlier accomplishments, BMDO is clearly on the path to providing protection for our forces deployed overseas, our friends and allies, and our families here at home. Mr. Chairman, that concludes my prepared testimony. I look forward to answering your questions.

Mr. WELDON. Thank you, General. We appreciate your excellent statement and the visuals provided.

I would announce to the committee that we will be operating under the 5-minute rule so as to give every Member a chance to ask questions. If we need, we will go back to a second round, assuming you can stay with us, General.

Let me start with two basic areas. First, I was impressed with the presentation that was given to a group of us earlier on the joint tactical ground system and the capabilities that that system offers, which was developed with missile defense funding. My understanding is that we did not have that system during Desert Storm, but that it offers us a tremendous new potential for our forces on the ground.

We lost 27 young Pennsylvanians in a building during Desert Storm that was hit by a Scud missile.

Would JTAGS help us alert perhaps in the future those kinds of young soldiers to the potential of a missile attack coming in?

General O'NEILL. Yes, sir, it would, very much. One of the problems we had in Desert Storm is when we were provided an alert, the alert was for the country. Saudi Arabia was going to be hit somewhere.

What the JTAGS can provide to the commander in chief is what part of Daron is going to be potentially hit by the Scud, so that when the warning comes it is not going to come very often, and when the warning comes, what it means is that a missile is going to land very close to where you are so you need to take emergency action instantly.

Mr. WELDON. My understanding is you are deploying that system today; is that correct?

General O'NEILL. Yes, sir. We have it deployed overseas in two locations. I would like General Black, who is deploying it for me, to comment on where it is going.

General BLACK. Sir, as you said, we have two prototypes deployed today. One is in Stuttgart, Germany, the EUCOM commander's headquarters there. The second one is in Korea, located there with the air base, and it provides the support there from three DSP satellites.

Mr. WELDON. Thank you.

General, my second question, over the weekend, as I mentioned earlier, CNN carried a news story, they are repeating the story today, showing a Russian SS–25, which is one of the their prime nuclear missile launch systems, which carries one warhead on each of three missiles in a battery. As you know, a mobile launch system, it has a range of I think approximately 10,500 kilometers, can reach any city in America.

The story highlights the Russian's attempts to provide this technology as a space launch technology. In fact, just within the last 5 days a launch was attempted with an Israeli satellite that unfortunately failed over the Sea of Erkutz.

If, in fact, one of these batteries of three mobile-launched missiles were to fall into the hands of a Third World nation with the Russians looking to sell off this technology, what defense do we have today to protect the American people against one of those SS–25's coming at the American mainland?

General O'NEILL. Sir, the defense we would have today is counterforce. We would try to detect where those missiles were, and we would try to knock them out. We would try to prevent the launch through diplomatic means. But there is no active defense in position today that could combat an SS–25.

Mr. WELDON. My third question, general, is that my understanding is that there are some in the Congress that do not want to us deploy a national system, and I understand that. There is an area for reasonable people to disagree. I understand we are providing 75 percent of the funding for the Arrow system; is that correct?

General O'NEILL. Yes, sir, we are providing approximately 72 percent of the funding for the design and development of the aero missile. The Israelis are paying for the radar system and the BMCQ. So if you ask me what percentage of the total system the United States was underwriting, at this time I would say about 50 percent.

Mr. WELDON. I am a strong supporter of that program, I have been for the last 6 years. But in the end when we finally implement the Arrow system, Israel will be the only country in the world with a national missile defense system. Is that correct?

General O'NEILL. Yes, sir.

Mr. WELDON. Funded largely by the American taxpayers.

General O'NEILL. Yes, sir.

Mr. WELDON. I thank you and yield to the ranking member of the committee, Mr. Spratt.

Mr. SPRATT. Thank you very much, General O'Neill, for an excellent presentation and bringing everything together very succinctly.

As I listen to your testimony and read your testimony, which was a good overview, accounting of what we have accomplished, there is an awful lot of technology that had to be developed to get to where we are, so we haven't wasted the money we have spent. We do have something to show for it.

We just don't have working systems in the field when it comes to strategic defense systems. There is quite an array of accord anti-BMD programs, although we started with a press conference which indicated there was no support for ballistic missile defense, I count 10 different systems we are working on today: PAC–3, THAAD, CORSAM, Aegis upper and lower tier, the Arrow to some extent, to the extent we are supporting the Israelis, and the GBI, ground-based interceptor with two different variations. It is 8 to 10 systems altogether.

General O'NEILL. Hawk is another one.

Mr. SPRATT. Hawk as well. So we have got a fairly complete array of systems. They tend to be biased towards the theater missile, but that clearly, would you not agree, is the pressing threat?

General O'NEILL. That is the top priority of the Defense Department right now, is TMD, the systems are out there. They have been used against Americans in combat, they have caused casualties, they have killed our troops, and we want to make sure that we don't go into a situation again where we can't defend ourselves against that class of weapon, yes, sir.

Mr. SPRATT. For the theater ballistic missile defense, you have got $2.3 billion. What could you do sooner or do better with respect to upgrading and completing these systems if you had more money?

General O'NEILL. If I had additional resources, I could reduce the risk of the programs in the core. One of the things that happened last year was Congress reduced funding for the Navy area program by $50 million. If Admiral Hood wants to talk about the impact that had.

Mr. SPRATT. Is that upper tier?

General O'NEILL. Lower tier.

Mr. SPRATT. We increased the upper tier somewhat?

General O'NEILL. Yes, sir. You have to do them in sequence, and a lot of the software written for the lower tier is applicable—you can't do the upper tier until you pass throughout lower tier the way we have orchestrated it.

Mr. SPRATT. Admiral Hood, is the lower tier defensive system sufficient for defending the level?

Admiral HOOD. The lower tier is the principal means of providing that protection of an amphibious facility. It has the capability of—a point defense much like Patriot against a shorter range weapon.

Mr. SPRATT. In choosing between the two without denigrating either one, do you think that a lower tier should be favored or given priority over an upper tier as we allocate scarce dollars?

Admiral HOOD. The chief of Naval operations and the commandant said the lower tier is the first priority for the Naval services for the reasons I just cited.

Mr. SPRATT. THAAD clearly is your key objective at the present time.

General O'NEILL. Yes, sir.

Mr. SPRATT. Is there anything with respect to the THAAD program that you need that you don't have in the budget that has been sent up?

General O'NEILL. We reduced funding in 1995 for THAAD, and if I had additional resources I would put that money back into THAAD.

Mr. SPRATT. How much money is that?

General O'NEILL. I think it was $60 million.

Mr. SPRATT. Now, with respect to national missile defense, as I understand your statement, and our many conversations, we are bringing this program to a state of what we might call DEM/VAL state. Where we will have some workable hardware, in the case of the ground-based radar it won't be a full-up radar system but it will be a replica that will allow to us make conclusions about the adequacy about the GBRX system we were working on several years ago. Are you satisfied with that particular approach to national missile defense?

General O'NEILL. The approach that we have right now will ready us for deployment in about 3 years, and then deployment would take about 3 more years. If it was desired that that timetable be sped up, Dr. Perry has authorized me to look at excursions to that, and as I mentioned to you and to some other Congressmen, there are excursions if resources were available that could speed that timeline up.

Mr. SPRATT. For the excursions that you have mapped out, what is the range of money we are talking about, additional money?

General O'NEILL. The excursions, the range is from $400 to $800 million over 2 years.

Mr. SPRATT. Additional funding?

General O'NEILL. Yes, over 2 years.

Mr. SPRATT. This would allow you to speed up the program until we could bring it to a DEM/VAL?

General O'NEILL. Yes, sir. This would put the program on a 2-year development, 2-year deployment timeline, 4 years from the beginning before 1996.

Mr. SPRATT. Could you share with us, for the record, your excursions?

General O'NEILL. I can do that. I have been authorized to do that, so I will do that for the record, sir.

[The information referred to is classified.]

Mr. SPRATT. Thank you very much.

Mr. WELDON. I thank the gentleman. His time has expired.

The chairman of the Acquisition Subcommittee, Mr. Hunter.

Mr. HUNTER. I thank the gentleman from Pennsylvania. Let me thank you, Curt, for leading the effort to put this thing on, and in producing this demonstration of equipment. And, General, thank you for all the work you have done in helping to put this together for Members of Congress.

Let me follow up on Mr. Spratt's line of questioning. The array of theater systems we have here will handle Scud-class missiles, will it not?

General O'NEILL. Yes, sir.

Mr. HUNTER. Those are relatively slow missiles?

General O'NEILL. Yes, sir.

Mr. HUNTER. We have Third World nations such as North Korea that are building Scud-type missiles right now and others that are receiving them subject to foreign military sales from the Soviet Union, is that accurate?

General O'NEILL. Sir, I don't know whether I can answer in open session.

Mr. HUNTER. Let me put it this way. There are a lot of Scud's around.

General O'NEILL. Yes, sir. There are thousands around.

Mr. HUNTER. But people like the North Koreans are building faster missiles such as the Taepo Dong 2 that we deny talking about.

General O'NEILL. Yes, sir.

Mr. HUNTER. Will any of these theater systems handle fast missiles, that is, missiles that go past the capability of the Taepo Dong 2, for example?

General O'NEILL. No, sir.

Mr. HUNTER. And they won't handle the Taepo Dong 2 that North Korea is building?

General O'NEILL. No, sir.

Mr. HUNTER. So even after we complete all of these systems and we have troops in theater in the Middle East or other places and our adversaries launch fast missiles, those of the Taepo Dong 2 class that North Korea is building, we are going to be vulnerable, our troops in theater will be vulnerable to those attacks?

General O'NEILL. Yes, sir. They would not be vulnerable if we deployed a strategic defense system, for example, if we had a strategic defense system, we could deploy that kind of a weapon to de-

fend against a Taepo Dong 2. But the Taepo Dong 2 is in a class beyond the missiles we consider as theater threats.

Mr. HUNTER. But there is nothing in the rules that say that the enemy can't use a fast missile against a theater target of American service people.

General O'NEILL. That is correct.

Mr. HUNTER. Asking you for your personal opinion, what do you think we ought to do about that particular problem, General O'Neill?

General O'NEILL. Well, sir, I think an aggressive technology readiness program in national missile defense will put us in a position where we will have the technologies that could combat the Taepo Dong 2 or anything up through an ICBM, which would go significantly faster than Taepo Dong 2. So as long as we have this technology readiness program, which we have put forward in our budget, that is the insurance policy that we need.

And the only issue then would be how fast do we have to have that capability and how fast would you like it to be deployed in case the Taepo Dong 2 appears on the horizon sometime soon.

Mr. HUNTER. OK. Let's go back to the funding for just a minute. You could robustly fund the array of theater programs for about $400 million extra dollars per year?

General O'NEILL. The question I was asking from Congressman Spratt had more to do with national missile defense and how I might be able to move up the timeline for that.

To more robustly fund theater missile defense, the one area I didn't mention earlier when I was talking about the shortage of funds in Navy Lower Tier and a shortage of funds in THAAD was the Navy Upper Tier program, where we have just completed a technology effort, and are now on a timeline which will get us to our next flight in a little over a year, a year to 18 months.

Additional funds could be used if funds were available to make that program move a little bit more swiftly.

Mr. HUNTER. So something less than $1 billion a year would robustly fund the full array of theater programs?

General O'NEILL. Yes, sir. I estimated $300 million when I was asked that question by the CAC.

Mr. HUNTER. If we spent the $300 million per year on the array of theater programs, that would in no way prejudice moving ahead with national missile programs. So they are not competing in that sense.

General O'NEILL. Well, they are competing for dollars.

Mr. HUNTER. We could solve the competition with $300 million.

General O'NEILL. They wouldn't compete. They would complement.

Mr. HUNTER. Thank you, General.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Hunter.

If there is no objection we will break the hearing so Members can vote. General, we will reconvene in approximately 10 minutes.

[Recess.]

Mr. WELDON. Reconvening the subcommittee, general, we will now turn to the gentleman from Utah, the chairman of the Natural Resources Subcommittee, Mr. Hansen.

Mr. HANSEN. I thank you, Mr. Chairman.

General, I think your statement was excellent and very informative, what you have been showing us today. I noticed a little flap from my colleagues going on about a CNN notice, the SSA–25 is being offered for sale. If I heard you correctly, you said we don't have any defense against that. Is that correct?

General O'NEILL. Yes, sir.

Mr. HANSEN. Would the same be true of the 18 or 19 or the 24 if they were offered?

General O'NEILL. Yes, sir.

Mr. HANSEN. So in regard to the things you have here today, are not to that position at this particular time contrary to what we hear all over America; is that correct?

General O'NEILL. Sir, we have technologies that are close to a state where they could be put on the shelf and from which you could develop such a system. But there is nothing in the field right now in the United States that could defend against those strategic threats.

Mr. HANSEN. Do you want to take a guess as to when there will be?

General O'NEILL. Sir, the program we have right now would allow a deployment decision in about 3 years, and a fielding of a system in about 3 more years. So the time line would be 2002, where one could have a deployed system.

Mr. HANSEN. But all of these things you are showing us today, you could build on those, I would assume, and these are the shoulder you will stand on as you go on to some of these other areas.

General O'NEILL. Yes, sir.

Mr. HANSEN. General, I notice that the fiscal year 1995 funding request for the SBIR program, that funding for the RAMOS program has been brought back to the BMDO budget, and specifically within the budget line for the midcourse space experiment.

Could you comment on the decision to move this funding responsibility?

General O'NEILL. Sir, the Air Force and the BMDO work very closely in the area of space-based infrared sensors. We coordinated with the Air Force last summer a study of how an architecture should be put together for space-based infrared.

It included a low Earth orbit and a high Earth orbit or geostationary orbit. The low Earth orbit element, tapping the technologies of Brilliant Eyes. Part of the Brilliant Eyes technology program which had been funded for many years in BMDO was the midcourse base experiment.

As part of the cooperative R&D initiative which we were pursuing with other nations, including Russia, we talked to Russia about a cooperative R&D experiment in space called RAMOS, Russian-American measurements satellite.

That program is related not to the geosynchronous in area but to the low Earth orbit. So it is related to the low earth orbit element of this SBIR architecture. We used to call it Brilliant Eyes, which has its progenitor, the MSX experiment.

So we felt that because the MSX experiment was part of my program, it was appropriate for my program to underwrite the RAMOS experiment.

As you know, we are presently in the process of working with Russia to find out how this program can move forward in a mutually beneficial way. But we are being very careful before we step out in this program to make sure we realize the product that we want to realize from the Russians.

Mr. HANSEN. General, don't you think this is an important program? It seems to me that it has all kinds of ramifications for being important, both for defense and for the relationship with the Russians as we know.

General O'NEILL. Yes, sir, it is a very important program. It is a very well put together program. As you know, the people at Utah State play a major role in our space-based infrared program, and they have been our technical arm in these discussions we have had with the Russians.

I think it is an important program, and I support it.

Mr. HANSEN. Everyone that talks to me about it points out that they appreciate the support they have received from you and others, and they truly and sincerely appreciate it. It seems like the Russians, that even with their financial problems, are stepping up to the plate, ready to come up with their part of it, is that correct?

General O'NEILL. Yes, sir.

Mr. HANSEN. Do you think it will continue that way?

General O'NEILL. Sir, I am not sure how things are going to go. We have planned to talk to our Russian peers on two occasions, and both times it has been suggested that we not interact. Chechnya was one of the issues that caused a meeting to be postponed, and the last meeting was postponed just a few days ago.

So I think we are moving slowly. But I am trying to be as careful as I can. I don't want to step into a scenario where we are investing more than we are reaping.

Mr. HANSEN. Thank you, General. I can understand your caution yet on the other hand I think we both agree this is a pretty beneficial program we are working on.

Thank you, Mr. Chairman.

Mr. WELDON. I thank the gentleman. His time has expired.

Mr. Tiahrt is recognized for 5 minutes.

Mr. TIAHRT. Thank you, Mr. Chairman.

We have discussed the reality of a threat now, and that SS–18's, 19, 24, 25's are not defensible at this point in time. Without getting into anything that would be classified, do we know of any countries that have this technology or are in the process of procuring this technology in the immediate future within the next 3 months, next 90 days, next 6 months?

General O'NEILL. Sir, do you know the technology for the offensive ballistic missile?

Mr. TIAHRT. Yes.

General O'NEILL. No. We don't know of any.

Mr. TIAHRT. This launch that was done with the Israeli satellite, was that initiated by the Russians or was it the Israelis that actually launched?

General O'NEILL. Sir, I don't know what I can say about that in an open hearing. I can say more in a closed hearing, but I think in an open hearing I should not make a comment.

Mr. WELDON. Will the gentleman yield?

I will give you a transcript which I have in front of me and the news footage of CNN which interviewed individuals of the Russian Government at the launch site. It was done at a Russian site launching an Israeli satellite. The test was a failed test, it fell in the Sea of Erkutz. It was an indication of a plain attempt by the Russians to sell the launch capability, not necessarily the equipment yet, but the launch capability.

Thank you.

Mr. TIAHRT. I think in an environment where some chemical and biological weapons are easily manufactured, that a delivery system is really the remaining problem, and it sounds like that is going to be on the offensive.

So I think there is the reality of a threat. Again without getting into something that may be classified, if we considered the threat real today, what timeline would there be in order to have a ballistic missile defense system available or on line?

General O'NEILL. Sir, I think we could have a ballistic missile defense system available depending upon the sophistication of the threat. And in the timeline with about a 4-year inside window. In other words, at the earliest, about 4 years from today, we could have a capability to defend the United States. As the threat became much more sophisticated, then one might have to move to more sophisticated technologies, and that would take a little bit longer.

Mr. TIAHRT. So over the next 4 years really we have to look 4 years in advance, even though this technology is available in the world today, even though we know that it is being marketed, we have still 4 years of window, 4 years that we are vulnerable?

General O'NEILL. Yes, sir.

Mr. TIAHRT. On our current timeline. Should the priorities change I suppose we could escalate the programs, perhaps move that back to an earlier date?

General O'NEILL. Sir, I think I would suggest that is about as fast as we could do it. This would assume that we have a technology program for about 2 years to demonstrate the technology, primarily the technology of the kill vehicle itself, and then we deploy a 2-year rapid deployment timeframe for a total of 4 years.

We could probably beat that slightly but I would hesitate to predict much shorter than 4 years. And I think my comrades here at the table would agree with me.

Mr. TIAHRT. So I think we have a threat that may occur sometime in the next 4 years. We are trying to achieve that as quick as possible in the current funding line.

General O'NEILL. Yes, sir.

Mr. TIAHRT. As I understood the earlier comment, there must not be any real threat or Americans would be building bomb shelters. I kind of liken that to Americans wearing crash helmets when they drive their automobile. They all know crash helmets save lives yet they choose not to wear them.

Because there are no bomb shelters that doesn't mean there is not a real threat out there. I think we should not bury our head in the sand about this. We note technology is floating around out there and I want to encourage you to continue your efforts with perseverance because it is important to this country.

I have no further questions, Mr. Chairman.

Mr. WELDON. I thank the gentleman and at this point in time will yield 5 minutes to the gentlelady from California, Ms. Harman.

Ms. HARMAN. Thank you, Mr. Chairman.

Thank you, General, for putting on this wonderful display.

Mr. Chairman, I would like to say for the record that this committee has a strong bipartisan tradition, and on this issue, ballistic missile defense, there is strong bipartisan support for the direction we are heading in.

I think it is a shame that inadvertently we begin this afternoon with a very partisan display. I don't think it has a place in a committee session, notwithstanding the merits of the presentation by Mr. Cox.

General O'Neill, I would like to pursue some questions about national missile defense. I know you have been asked some and I apologize for being in and out, but as you know, votes and conflicting subcommittee schedules make that essential. I was interested in the chart that is along the wall on the legacy of ballistic missile defense, and it shows us that we started this long before Ronald Reagan.

Let me ask you this, and perhaps you have been asked it before, in which case do tell me, but could you articulate for us what you perceive to be the nature of the threat to the continental United States now, 5 years from now and 10 years from now?

I am not asking for classified information but I would like to know where it could come from and what precisely do you think we need to meet that threat.

General O'NEILL. Well, it is difficult for me to provide an answer without being very careful about getting into information that I have that I cannot disclose in open forum.

Ms. HARMAN. I understand that, sir, but I am asking for what you can tell us on the public record, since this issue is out there in the public debate and we ought to have some factual information to discuss.

General O'NEILL. Yes, ma'am. Let me just preface it by saying that I have asked my intelligence support activities, the Defense Intelligence Agency, to update the national intelligence estimate for the threat to the United States, and to consider, and it is a very difficult question, but to consider the uncertainty of their predictions.

And one of the things that beclouds the issue is the purchase, the obtaining through some illicit ways of Russian hardware, Ukrainian hardware, Chinese hardware, things like that.

I think the easiest projection to make is to look at the technical abilities of the various countries, what their industrial superstructure, substructure is, and how long it normally takes them to field indigenous systems. And I think we could do that fairly accurately.

In that context, the director of DIA, General Clapper, has suggested that an indigenously developed system, developed by one of the rogue states, would not be available until the middle of the first decade, until the end of the first decade of the next century.

So that gives us 10 years. The issue is when one asks him what uncertainty do you have when you make that prediction, what as-

sumptions do you make, the assumptions I think, and I don't want to speak for him, but I think the assumptions are indigenously developed. Their engineers, graduating with their Ph.D.'s, and then starting to build these systems, and they don't talk about a deal in the dead of the night where an Antenof 124 flies into their capital city and this thing rolls out and the next day they have the capability.

So that is the concern I have. I think with the projections I have been given, and of course I develop hardware in response to a requirement from the user, my program is on schedule.

The war fighter projects the need for future missile defense. And we have provided a program which provides an option to deploy a defense against a limited threat in about 3 years.

So the President in 3 years would be able to say, I am concerned enough about what is happening in North Korea or wherever. I want to put more resources into national missile defense and I want to deploy a site at Grand Forks. And we can do what in the present program.

Ms. HARMAN. And a limited threat would cover the situation you just described, where a country doesn't have indigenous capability but it has in the dead of night some kind of instant capability rolled in?

General O'NEILL. Yes, ma'am, unless that instant capability was the most sophisticated, modern Russian system, a multiple reentry vehicle system, something like that, then that would be a new challenge. And at that time I would have to tell the national command authority that we need more time to field the system. We might need another 2 years. And then the options in the national command authority would be restricted.

Ms. HARMAN. Thank you.

Mr. WELDON. The gentlelady's time has expired.

The gentleman from Mississippi, Mr. Taylor, is recognized for 5 minutes.

Mr. TAYLOR. General, following up on what my colleague had to say, what is your timeline on actually deploying a system like that, should it be funded adequately by this Congress?

General O'NEILL. Sir, the timeline would be from a decision to deploy, about 3 years. I would say 3 to 5 years if it wasn't an emergency deployment, to provide for the necessary amount of decision risk.

Mr. TAYLOR. Three years from funding?

General O'NEILL. Three years from the time when the President makes a decision to deploy. On the present schedule we could deploy a defense against a limited threat.

Mr. TAYLOR. How close are you to being in a position to make that request of the President?

General O'NEILL. Three years.

Mr. TAYLOR. So we are talking 6 or 7 years.

General O'NEILL. Yes, sir, 2002.

Mr. TAYLOR. With the proliferation of diesel-electric boats around the world, what does that do? How would you respond to something like that, a single or two submarines deployed off the East or West or Gulf Coast of this country?

General O'NEILL. I can answer that question, but I am nowhere near the expert that the gentleman to my left is. So I think not to waste your time, I will ask Admiral Hood to respond.

Admiral HOOD. Yes, of course, diesel-electric submarines are fairly widely deployed around the world. None I know except the Russians can launch ballistic missiles. Cruise missiles could be a problem. None that I know of launch land attack cruise missiles.

Mr. TAYLOR. The boats that the Russians recently sold to the Iranians, I think the Koreans purchased a couple, they are not capable of launching ballistic missiles.

Admiral HOOD. The Iranian diesel-electric submarines are not capable of launching ballistic missiles. The ones sold to the Koreans, I am not sure of. I don't know.

Mr. TAYLOR. Could you get back?

Admiral HOOD. Yes. I don't know the answer to that.

[The information referred to is classified.]

Mr. TAYLOR. General, and again, I should have written down your exact words when you said them, and I apologize for that, but I thought at some point when the question by Mr. Weldon about the high-speed missiles such as the Korean missile, you said that only a space-based system would be able to react to that? Is that correct?

General O'NEILL. No, sir. What I said was only a strategic defense system, either ground-launched or space-based system. I was thinking ground launched.

Mr. TAYLOR. In your opinion, how far away are we from having a system that can be purchased?

General O'NEILL. As I said, sir, on the present schedule, at the present funding level, we could make a decision in 3 years. And that technology would be capable of doing exactly what Congressman Hunter asked of me. It would be just a larger system, and it would be usually a static system fired out of a silo, but if we had to move it into a theater, you could move it into a theater and you could launch it if the threat to the theater included something like a strategic weapon.

Mr. TAYLOR. That would intercept a No Dong?

General O'NEILL. It would stop more than a No Dong. He was talking about a Taepo Dong, which goes beyond the range, we think, of the theater class ballistic missile. The No Dong is right in the middle of that range.

Mr. TAYLOR. I don't want to down play your reference, but how do you respond to a nuclear, biological, or chemical device on board a ship sailed into one of our harbors?

General O'NEILL. Sir, my mission is to defend against attack by ballistic missiles, cruise missiles. Those other mechanisms are just as dangerous.

Mr. TAYLOR. Is anything being done so that can be detected by satellites and other means?

Again, not to minimize what you are doing because it is very important, but it seems to me you solved this problem, and yet this just opens up another scenario for one who wanted to open up an attack on the United States or one of its allies.

General O'NEILL. Let me just mention in the DOD we do have a counterproliferation initiative under Dr. Harold Smith. I am part

of that initiative. I am the active defense element against ballistic and cruise missiles. But Dr. Smith has a whole series of things that he is trying to pull together which include prevention measures, which include inspections, detection, diplomatic means, treaty means, as well as protective devices, and those protective devices include active defense, passive defense, counterforce options, and all of the above.

And he works for Under Secretary Kaminski, and I work with him on a daily basis and his experts.

So my part of the program has been partitioned. And I am providing that element of the whole counterproliferation initiative.

Mr. TAYLOR. Thank you, Mr. Chairman.

Mr. WELDON. Thank you. The gentleman's time has expired.

Mr. Kennedy is recognized next for 5 minutes.

Mr. KENNEDY. Thank you, Mr. Chairman.

Obviously I was enormously impressed as a member of this committee to come around today and to look at the various booths and to see how far we have come in terms of the research and technology.

But as a Representative of the First District in Rhode Island I am called to answer for the taxpayers' dollars, and I know a big part of your presentation today has been to bolster the support for having gone as far as we have gone in terms of spending the $35 billion.

I just ask you to for my sake, and I am sure it might be repetitive, but nonetheless important for the viewers out there to understand what we have gotten for this investment. What we can take from this investment and apply toward the THAAD and missile defense? Because I think clearly the area of missile defense is obviously the first or the highest priority for this committee.

General O'NEILL. Yes, sir. Well, the THAAD program, as I mentioned earlier, is ready to begin its testing in about a week. That system is going to be the first system on Earth that will be able to engage over hundreds of kilometers and protect an area against the most modern theater ballistic class missile.

The technologies that THAAD uses include the most modern ground-based radar in the world, built in Massachusetts, by Raytheon. It includes hit-to-kill technologies which we mentioned earlier were perfected in the old SDIO program.

The THAAD system is going to be the first tactical weapon that will be able to engage without a warhead, without any explosion, nuclear or otherwise, targets outside and inside the atmosphere.

Mr. KENNEDY. Can I stop you for a second? We have limited time.

To what extent have we breached the gap in technology to hit a missile directly as opposed to blowing up the area around it and hopefully diverting it that way?

General O'NEILL. We have demonstrated hit-to-kill on many occasions. I would say probably 20 times.

Mr. KENNEDY. Is that the most fail-safe of our methodology currently, to intercept and destroy an incoming missile, is to hit it directly as opposed to get as close as you can and then blow it up.

General O'NEILL. This is the way to achieve maximum lethality without exploding a nuclear weapon, and we don't want to do that.

The kinetic energy weapon imparts all the energy—it is one-half mass times velocity squared. All the energy that is in that system goes into the punch. And our lethality calculations, modeling, and experiments suggest that there is no other way short of a nuclear burst to get tremendous lethality.

If a warhead goes off and throws fragments out at the target, it can be lethal against many targets, and it all depends on how close you get and how good your fuse is. But that is not as good as making the metal-to-metal contact.

Mr. KENNEDY. It seemed to me you want to hit it direct, and if you had the technology and 100-percent accuracy you want to hit it direct, but if we have got a better defense by deploying a greater number and sort of getting the area around whatever incoming missile, we have really covered that breach so we have got the technology, it hits it directly, and that is the best technology we have.

General O'NEILL. Yes, sir. The inherent survivability of the weapon of mass destruction is a problem. If it were aircraft it would be different. If it were piloted it would be different. Those are softer targets, easier to stop. But if the system is nothing but a warhead in a round shape coming at you, then the best way to stop it is to drive into it.

Mr. KENNEDY. That is exo-atmospheric.

General O'NEILL. Yes, sir.

Mr. KENNEDY. Even in short range, that is the best way?

General O'NEILL. It is not the easiest way. It is the best way.

Mr. KENNEDY. Most effective.

General O'NEILL. It is the most effective way. And we are very sensitive to what happens after the thing is wounded, like the Kamikazes at Okinawa, very often they came in and hit the sides of our ships, even with the pilots killed.

Mr. KENNEDY. Just to follow up, Mr. Chairman, the $35 billion we have invested to date, most of that went to what was known as star wars, the exo-atmospheric defense of missiles. What I am interested in with our focus on theater ballistic missile defense, to what extent did the money we have spent already apply toward moving us toward this THAAD concept of theater ballistic missile defense?

General O'NEILL. I would guess half of it, or more. I can't think of many technologies that don't have an applicability to theater missile defense. For example, directed energy, one might say none of your directed energy applies to theater missile defense.

On the contrary, one of the only ways to get at a target that is a short-range ballistic missile that only burns for 100 seconds is to hit it with a laser because you can't fly to it. Things happen too fast. So a lot of the technologies we have developed in directed energy are applicable to theater missile defense, too.

The issue is, do you want to tap them for that purpose. It is not are they inapplicable. It would be hard for me to find any element of my program that isn't applicable to the concern you have for protecting forward deployed U.S. forces, friends, and allies.

Mr. KENNEDY. Just to follow up, I would say that I hope your work with Mr. Taylor that you brought up in terms of the nonproliferation, I think that is crucial.

We can spend a lot of money enhancing our technology and then see it slip away and be used against us. Obviously the most effective way of using our money I think right now is to ensure that, you know, our potential threats don't get a hold of that technology so it can be used against us.

Mr. WELDON. I thank the gentleman. His time has expired.

The gentleman Mr. Meehan is recognized for 5 minutes.

Mr. MEEHAN. Thank you, Mr. Chairman.

First of all, let me compliment General O'Neill on your presentation this afternoon. I applaud your leadership on the ballistic missile defense program.

In a recent interview that you gave I believe in Defense News, a theme that runs through the interview is the tight budget situation facing the BMDO. And I was wondering what steps you have taken to leverage our investment in ballistic missile defense through burden sharing with our allies.

I ask this because in the 1994 authorization, a Treasury account was established to receive funds from our alliance partners toward the development of the theater missile defense program. And as of this date at least my understanding is that the account stands at zero.

So I am wondering what actions if any have been taken within your organization to try to encourage the financial participation of our allies in the theater missile defense programs.

General O'NEILL. Yes, sir. It is a pleasure to answer that question.

First I would like to say that for I think it is 8 years we have been in a very close cooperation with Israel, a country which is concerned about its survival, and which has a significant threat capability very close at hand.

The Israelis have contributed significantly to the development of the aero system and other missile defense technologies which we see as primarily applicable to our theater missile defense program because of the limited ranges of their systems and limited velocities.

But they are excellent scientists and engineers, and because of the cooperative nature of our program, we can tap any or all of their elements in any way we want, so it has been a remarkable leveraging that we have had.

As I mentioned earlier, we are putting in about half of the money for aero. But we are getting the full aero technological output, which we can use in any way we want, for THAAD, for PAC–3, for other systems. So that has been a very significant success story; and the most successful story I can talk to today.

In the case of the United Kingdom, the United Kingdom has not invested anywhere near what Israel has invested in missile defense, but there the contributions of their scientists and engineers have been significant in solving problems for us, for the United States.

We have paid our way, but I think we have gotten our money's worth.

An initiative Dr. Deutch has suggested should be looked to as a flagship for all of DOD, is a work that he primarily led with others, including myself, to put together a cooperative R&D program

where the NATO nations would pay at least half the cost of the development of the future system, and this future system, we had in the past called CORSAM. We now call it because of our working with the allies, they don't know what CORSAM means, median air defense system. This is a vital system for defense of our forward deployed forces.

I have a letter from the vice chief of staff of the Army and the vice commandant of the Marine Corps saying they have to have this system, they need it now.

Patriot isn't in the Marine Corps. Patriot doesn't move fast enough for the forward deployed elements. It would be at the rear area, defending the ports, the airfields, but the Army and Marines want something that will be at their fingertips to defend them against air breathing threats, including cruise missiles, unattended vehicles, RPV's, and ballistic missiles of the range we are talking about, and classified as short-range ballistic missiles.

So with the help of Dr. Deutch, and through at least five or six trips which he made to Europe, and the help of Herr Schoenbaum from Germany, Mr. Conze from France, we have put together a consortium to put together the most modern battlefield missile defense, air defense system in the world. And for that system we will pay 50 percent, Europe will pay 50 percent.

And I think it is an example of how we can work together to burden share with our allies.

Mr. MEEHAN. Thank you.

Further, the centralization of management for ballistic missile defenses within your agency, how has that contributed to the cost reduction in some of these programs?

General O'NEILL. Sir, it is contributed because we have not in the DOD been in a situation where there wasn't an oversight entity to ensure that the Army in its laboratories developed a system and the Navy in its laboratories developed the same system and the Air Force in its laboratories developed the same system.

For example, the hit-to-kill technologies were developed first for strategic defense initiative organization. They are now used by the Army in PAC–3, they will be used by the Navy in Navy upper tier, the technologies for the sensing for missile defense were developed in SDIO, they are now going to be used in the Air Force for the space and missile tracking system, the SBIR low earth orbit element.

These things we wouldn't have had there not been an organization which had missile defense blinders on. And it wasn't worried about fighters or frigates or tanks. It was worried about defending ourselves, our forward deployed forces, friend and allies against ballistic missile attack. That is my job. And that is the job of these people helping me.

Mr. MEEHAN. Thank you.

Mr. WELDON. The gentleman's time has expired.

I would like to announce that we will continue this session following this vote which will take approximately 10 minutes. The vote is on the Dornan block amendment.

The next questioner will be Mr. Edwards of Texas followed by Mr. Longley. Then it would be my desire to go for a second round,

Mr. Spratt, if you want to return. I have a few additional questions.

We really appreciate you sticking with us, general. Thank you.

We will recess for 10 minutes.

[Recess.]

Mr. WELDON. We will reconvene the subcommittee.

General, I know we are expecting additional members. The next questioner would be Mr. Edwards, and I will defer to him as soon as he arrives; and then Mr. Longley, I know, is going to return.

I have a couple of other questions I will lead into and then allow Ms. Harman or Mr. Hunter to also add some questions while we are here.

What we have seen is obviously impressive and the investment that we have gotten and made and the return, I think, when people look at what you have explained to us today, they cannot help but acknowledge that we are far better prepared to protect our troops and our allies and even, I think, eventually the American citizens than we have ever been in the past.

Would you comment on our system and the upgrades to the Patriot in comparison to what the Russians are doing?

There are some who make the argument, well, we are spending all this money on missile defense and the Russians are not doing anything now; it is a whole new era and environment. As a matter of fact, I have been trying to get the intelligence community to declassify to me the equivalent level of funding for their missile defense and air defense capabilities because, as you know, that is an equal branch of their services—it is the army, the navy, the air force and air defense. And you are not elevated to that level, unfortunately. We would perhaps like you to be, but they do elevate their air defense command to that level.

So, specifically, maybe on the SA–10 and the SA–12, the capabilities of this system compared to ours and whether or not they are attempting or are keeping up with us in terms of missile capabilities.

General O'NEILL. Sir, I think when one considers the capabilities of the Russian systems, one very quickly goes into the classified domain. So I will try to endeavor to stay out of it, and I may ask General Black to assist me.

Mr. WELDON. The only reason I bring it up is because, as you know, the SA–10 was reported in the editorial in The New York Times as having been one of the systems having been purchased by our CIA. So it has been publicly discussed. I understand your concerns, but it has been publicly discussed that we have in fact purchased the system.

General O'NEILL. Yes, sir. I would suggest that the SA–12 is probably, although I have never seen one, a very capable system. It has ATBM capabilities, tactical ballistic missile capabilities. We think it would measure up to the Patriot. From what I see of the system, I would suggest it is much more complicated to work; it is much more labor intensive, probably much more expensive to operate than the Patriot. So from my standpoint, I would not consider it the equal in terms of cost and operational effectiveness with Patriot.

The SA–10 is less capable than the SA–12, but I would ask General Black to comment also.

General BLACK. There is not a whole lot I can add beyond that that we are looking at that system, that the capabilities of the system are that it is not as user friendly. As you know, it has two different missiles, the Giant and the Gladiator, as we call them, giving it a little bit more of a versatility; but we also have different missiles that we use with our Patriot system, and different capabilities go with each of them.

It was designed from the beginning, however, to have an ATBM capability. And so from that point of view, they did design in some things that we had originally in the SAM–D design that we took out of it when we went forward with Patriot, that we subsequently put back into it after 1983. It is very large. It is cumbersome by our standards, but the system is quite effective, and so I don't know what they are doing to improve upon the system. We would have to get into the intelligence world to find that out.

Mr. HUNTER. Would the gentleman yield?

Mr. WELDON. Yes.

Mr. HUNTER. I saw one of the advertisements for this SA–12, buy two get the third one free. The description of the hotter missile was that it is a lot faster than Patriot and that it had, quote, near strategic capability. Now that is the advertising brochure that accompanies. So I have always thought we kind of understated—I agree with you, the slower missile is pretty close to Patriot. I think the other one is quite a bit hotter, at least by their own advertising it is.

General O'NEILL. I think it is.

General BLACK. It is a bigger and hotter missile designed specifically for an ATBM roll. When we put PAC–3 into the Patriot system, I think that the capabilities of the systems will be comparable.

Mr. HUNTER. OK.

Mr. WELDON. I thank the gentleman and would be happy to yield now to the gentleman from Texas, who has come back, and we will even give him extra time, Mr. Edwards.

Mr. EDWARDS. Thank you, Mr. Chairman. I made the mistake of coming back after the amendment vote, and I appreciate the time to ask questions, especially since I am on the Procurement Subcommittee rather than the R&D Subcommittee.

I do want to commend you and Chairman Hunter both for holding this series of hearings. I think getting the facts on the table on issues of weapons of mass destruction is terribly important. In fact, my problem all along with the Contract With America timetable, which neither of you set, was that it made us draw conclusions and vote on policy before we could have these very hearings. I must say, if I have any criticism of the process today and in the hearings we have seen, it is that some members, not either of the two chairmen here, who are religious about coming to these hearings and sitting through all of them all day long, my criticism is some of those people most anxious to make a political statement in front of TV cameras are seldom here during the lengthy hearings.

I will not criticize Mr. Cox because he is not a member of this committee, but I would say if his interest was so great in ballistic

missile defense, I wish after his press conference, he had stayed to hear the excellent testimony we have had today.

General O'Neill, thank you for your comments today and in previous hearings.

It seems to me that there are two issues we are trying to address here. One is this. What weapons of mass destruction pose the greatest threat to U.S. citizens, both here and abroad? The second is, given limited resources, what are the best options to deal with those threats?

Now, do I take it from your earlier testimony today that you do not pretend to be in a position to answer the first question? What weapons pose the greatest threat among chemical, biological, nuclear bombs delivered in a truck versus an ICBM, cruise missiles? Is that part of your charge to try to determine whether ICBM's, for example, are a greater, more immediate threat than the delivery of chemical or biological weapons in downtown Manhattan.

General O'NEILL. No, sir, that is not part of my responsibility.

Mr. EDWARDS. OK. That is one of the issues that the two chairmen have focused on in previous committee hearings, and I think that is very appropriate. But given that is not your responsibility, I understand then your responsibility is to focus on the one threat, intercontinental ballistic missiles.

Not assuming that is a greater threat than other threats but given that that is a real-life threat, how do we best respond to that? Is that correct?

General O'NEILL. It is the ballistic missile and also cruise missile that I am interested in, theater and intercontinental. But in terms of national missile defense, my focus is intercontinental ballistic missiles, that is right.

Mr. EDWARDS. Would you agree in some ways the cruise missile is a greater threat today to the continental United States than perhaps an ICBM from a Third World nation?

General O'NEILL. No.

Mr. EDWARDS. Would you conclude that an ICBM is a greater threat than a cruise missile?

General O'NEILL. Yes.

Mr. EDWARDS. Today, it is?

General O'NEILL. Yes.

Mr. EDWARDS. Mr. Cox says there are 15 nations that have long-range missiles. Are there 15 nations that have missiles that could deliver a payload into the continental United States?

General O'NEILL. No, sir.

Mr. EDWARDS. So there are not 15 nations that can deliver into the United States. And of those that have long-range missiles, not all of them have nuclear warheads; is that correct.

General O'NEILL. That is right.

Mr. EDWARDS. OK. Let me ask you about the situation with space-based interceptors. Out of respect to my chairman, I will not use that two-word term that somehow at times has been used pejoratively.

Mr. WELDON. Thank you.

Mr. EDWARDS. In terms of space-based interceptors, it is one of the options I think we ought to look at, and we ought to all be open-minded about. But tell me where we are right now. If one

wanted to push the deployment in the next couple of years of a space-based interceptor system, would that be premature, in your opinion?

General O'NEILL. Yes, sir.

Mr. EDWARDS. It would be?

General O'NEILL. Yes.

Mr. EDWARDS. Are we within 5 years or 6 years or 10 years of having a space-based interceptor system, or the technology necessary to perhaps stop hundreds, if not thousands, of incoming ICBM's? Are we anywhere close to having that technology in place?

General O'NEILL. If you are talking about thousands of weapons, you are talking about a very sophisticated defense system, and it would look very much like the strategic defense system which is shown in that chart next to the quadra chart which we showed during the tour, and it would include the geosensor, a low earth orbit sensor, the space-based interceptor, the ground-based interceptor and radar systems. And if you were to ask me whether all of those could be in position, ready to go within 10 years, I think the answer is, "yes, but with risk."

Mr. EDWARDS. You suggested earlier we are not ready yet to go to deployment of a ground-based interceptor, that we should continue research and development for 2 more years or so. So it would be premature to go immediately ahead with a ground-based system?

General O'NEILL. That is right.

Mr. EDWARDS. One of the options we should consider is, you know, if it is not 20 years to develop a space-based interceptor system, perhaps one reason we do not want to deploy a ground-based system now is maybe the technology does come along to have that far better capacity available to defend our shores and our citizens. Is that a possibility?

General O'NEILL. That certainly is, and I think that is why we have this advanced technology as part of the structure of the missile defense program. And in that advanced technology arm of my program, the boost-phase interceptor, space-based interceptor concepts, they are marginally funded. One that has significant payoff is the space-based laser, and that program is going to zero in fiscal year 1998. We will no longer fund a directed energy program in the MDO. But those concepts have tremendous payoff if they are developed further.

Mr. EDWARDS. Final question: Based on your knowledge of all the threats that have been discussed today and your knowledge of threats that we have not discussed today, we have a present ballistic missile defense system, as you pointed out, that puts 80 percent of those funds into theater missile defense, 14 percent in the national missile defense. Given the threats to the United States citizens, as you understand them today, is this a proper allocation of resources?

General O'NEILL. Yes, sir.

Mr. EDWARDS. And, therefore, if somebody suggested to change that priority to put 80 percent in the national missile defense and 14 percent in the theater missile, or 50 percent in the national missile and 50 in the theater missile defense, you think that would be a wrong ordering of priorities; is that correct?

General O'NEILL. With the level of funding we are talking about, the $2.9 billion program, the 80 percent is needed to provide a response to the existing threat for theater missile defense.

Mr. EDWARDS. So in your opinion, the theater missile threat is a more imminent threat than national missile defense; not to say the other is unimportant, but in immediate terms, it is the theater missile defense that needs our top priority?

General O'NEILL. Yes, sir.

Mr. EDWARDS. OK.

Thank you, Mr. Chairman.

Mr. WELDON. We thank the gentleman, and the gentleman's time has expired. And we did give him 7 minutes, just for the record.

We will now yield to the gentleman, Mr. Longley.

Mr. LONGLEY. Thank you, Mr. Chairman.

General O'Neill, I would like to ask a question and follow up a line that was pursued by Mr. Taylor. He mentioned the feasibility or the prospect of a barge coming into a harbor, or other what I will call "nontraditional alternative delivery systems," and as a defensive commander, I would venture that you have probably thought of what type of adversary you might confront who would have to be actually initiating some type of attack. I am wondering if you could discuss that.

Are there advantages to another country that has ill designs on us to maybe use a barge or something other than a missile delivery system, or could you discuss really the implication of that and how you feel and whether or not you feel that ballistic missile issues are, frankly, worthy of the attention that we are giving them in lieu of other alternatives?

General O'NEILL. Well, sir, I have been convinced for many years this is a very worthy program, and I mentioned the first time I testified my significant concern that some might feel either for technological reasons or for philosophical reasons that a ballistic missile would have a free ride into your foxhole. And I said there are no physics that exist that suggest that a ballistic missile cannot be countered actively, using the technologies that we are developing right now.

In terms of my predilection, were I an adversary of the United States, what you want is the ability to respond quickly, resolutely, and with finality to a number of scenarios; and I think the barge option is not a good option. If I am the President of some rogue country, I would like to be able to respond to a political move by the West by putting my finger on a button or threatening to put my finger on a button and changing their minds very quickly, within 10 to 15 minutes.

With a barge scenario, what you have to do is you have to get the barge after a crisis develops—unless you are a terrorist, after the crisis develops you have to get the barge through the U.S. Navy. I find it hard to believe that someone would be able to do that, especially if there was a crisis and we were facing this rogue state who is suggesting use of weapons of mass destruction.

So, the only scenario I would have to use this barge would be a terrorist scenario where I brief my people and say, OK, at 0700 on the 1st of December, we are going to blow this barge up in the Ohio River.

Mr. LONGLEY. So what you are saying, the timelines and the planning scenarios——

General O'NEILL. Timelines are very difficult, all of the things that can go wrong from the time you brief the crew and they talk to their families and talk to other people about where they are going and why they are going, and putting that system on the barge and getting it through Customs and other scenarios make it more difficult. I am not saying one could not do that, but I am suggesting that it is a heck of a lot easier if you have the technology to be able to respond in a matter of seconds, if not minutes, to a decision that you want to make to influence another nation militarily.

Mr. LONGLEY. In response to Mr. Edwards' question, I believe you said that your thinking was, a ballistic missile threat was much more serious than a cruise threat.

General O'NEILL. To CONUS. And the reason is, we do not have an intercontinental cruise missile. The United States does not have one, has never built one; the Russians do not have one, never built one; the Chinese do not have one, never built one.

We don't have a cruise missile that will fly 10,000 kilometers. The cruise missile is used in theater, and it is a very dangerous weapon in theater. But in order to get a cruise missile into the continental United States, I need a barge. I have to take a ship or a barge or an airplane to within a couple hundred kilometers of our east coast or west coast to launch the cruise missile. So it makes it a much more vulnerable system because you have to make sure your aircraft can get to where it is going or your barge can get to where it is going or your ship can get to where it is going.

Whereas, if you have a ballistic missile, all you need to do is add a stage or have this space launch capability that Congressman Weldon is worried about, and you have got it. You have got it right at home. You could have it in your backyard, if you want to; and you press the button and it flies and lands where you want it to land. You don't have to worry about training these guerrillas and putting them on the barge and making sure the barge gets through the straits and across the ocean through the U.S. Navy, through the U.S. Air Force.

Mr. LONGLEY. Mr. Chairman, I ask unanimous consent for 1 more minute for one more followup question.

Mr. WELDON. Sure.

Mr. LONGLEY. The Soviets are selling the SS–22's or 25's, potentially selling them to overseas markets. And what that represents, obviously, is that one of the few intercontinental threats that we face are Russian missiles and the extent to which those could also be, with proliferating, in addition to the full panoply of ballistic missiles. Obviously, it presents a dire threat to this country.

What do you feel is your single most important priority in terms of moving these programs forward to the point where we are able to counter that threat?

General O'NEILL. My highest priority is the interceptor, what we call the Exo Kill vehicle. It is work that we project will take us about another 3 years at the funding that we have. I think that is the single most important element. It is the rabbit for the rabbit's stew, as it were.

Not to say that the sensor that the Air Force is working on, the space and missile tracking sensor is not important; but I see us having a capability using the Air Force's early warning radars and our radar capability that the Army has, together with this interceptor which the Army is developing for us, that could be the first defense and that is what I am concerned about.

Mr. LONGLEY. I would just add, I know there are some of us on the committee that are anxious to learn what we need to learn to master this subject, and if you or your staff have any suggestions or recommendations, I would appreciate hearing them.

Thank you, Mr. Chairman.

Mr. WELDON. I thank the gentleman for his questions. His time has expired.

We will start a second round of questions so I would encourage my colleagues to stick around and get a second chance to ask some questions.

General, along that line, we had planned an R&D trip over the break. We are having trouble because of all the conflicts, but it is my intent to get members down to Huntsville and to have them see firsthand the work that is being done and to also perhaps visit some test sites. As you know, I have had discussions with you along that line to get Members out so that more Members can look and talk to people like those you have assembled today about the work we are doing.

Part of the problem I perceive in the Congress is that Members are voting in many cases on missile defense issues in a vacuum where they do not have adequate information because they have not either got it on their own or we have not been able to give it to them or they are voting totally on fiscal issues and priorities. We have to make sure that they understand not just where we are going, which you have done well here, but also what the threat is.

As you know, this is our third in a series of hearings. We plan two more on this issue, one on the treaty itself and a fourth hearing which will focus on retired military officers who have been in situations where missile defense would have been of assistance, whether it had been in Desert Storm or other operations; and we hope to have that hearing as soon as the recess has ended.

Two of the main concerns that I have relative to what is happening in the whole area worldwide is the proliferation problem. We have talked about the SS–25, which as I have talked to you about in my office, and which coincidentally came up on CNN this past week as a major story—and for the members, I repeat that I will give you a taped copy of CNN's broadcast that will show you an SS–25 mobile launch missile, rocket launch system being used to put an Israeli satellite in the air. This was within the last 5 days. The test failed. The missile went down in the Sea of Erkutz.

But the point is, the Russians are aggressively marketing the technology for the launch capability. The problem we have is, who knows when that technology currently being offered, but controlled by the Russians, might be offered without the control of the Russians or to some country that could get that capability. That is the real threat that we have to consider.

Now, it may be remote, but it, in fact, is there and as the General stated on the record we have no protection for that at this point in time.

My second concern from a proliferation standpoint which I have raised at the subcommittee hearings repeatedly is my concern with our own country selling off technology that, in the end, is going to hurt us. And I get back to this rocket motor sale to the Chinese which we are about to give the technology to which will enhance the capability of the Chinese to improve their cruise missiles that we are then going to have to defend against. It is outrageous.

I think we have to take a stand with the administration on this issue and say, this is wrong. Certainly, I guess you could make the point that it is a jobs issue, but it is a jobs issue that, in the end, I think will actually hurt our country.

Let me get to one other point, General, we have not talked about. Talking about missile defense and the priorities. I am convinced you are heading in the right direction. I think perhaps we could help you by giving you some more dollars, which we have talked about, and your guidance on where to put those dollars that have been asked for can be used most wisely in the markup process.

But let us talk about the hearing today. What have we got for the money? And I want to thank the contractors, first of all, who with your cooperation brought this assemblage here today. It is extremely impressive and certainly dispelling any notion that we have not done what America typically does and that is provide the best for the money that we have put out. The technology is extremely impressive.

Can you, for the record, tell us about how many jobs have been involved and are involved in the industrial sector in terms of missile defense? And perhaps your various service officers could tell us, in their own estimation, how many jobs are we talking?

Members of Congress like to talk about jobs. So how many jobs of the $3 billion we are spending now—and perhaps in the past are we talking about—tens of thousands, hundreds of thousands. What kinds of impact have we had on the economy of this country with our investment?

General O'NEILL. We are talking tens of thousands of jobs, sir. We are talking between 10,000 and 20,000 people who work in this program every day. A large percentage of the people, of course, are in American industry. In the Government there are about 2,000; in my organization there is something over 200. So it pyramids down from the management level out to the industry, where I would say at the highest level of our work, we were at about 20,000. We are probably down a little below that now, probably down to 15,000, I would think between 15 and 20.

Mr. WELDON. And of those 15,000 or 20,000 people working in the various BMDO programs, are some of these plants and facilities represented by organized labor unions?

General O'NEILL. Oh, yes, sir.

Mr. WELDON. So we have——

General O'NEILL. Most of them.

Mr. WELDON. So the labor movement is involved in helping develop this technology we are seeing today.

General O'NEILL. Yes, sir.

Mr. WELDON. The reason I ask this is because that is going to be part of our efforts to reach other Members of Congress is to reach out through those networks to get Members to understand that we are talking about what is right for America, from a strategic standpoint, but also it provides jobs for people across the country, perhaps in every congressional district.

As you know, I have asked you for a complete listing of all the subcontractors working on the various technologies, as well as the sub and sub subcontractors so that we can begin to develop a working process with all of those groups, as well as the labor unions and other interested groups that have an interest there. With that, I would yield for the second round to the chairman of the Acquisition Committee, Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman, for your line of questioning because you have laid out a pretty good blueprint here and, General, let me just say to you, I have been here a while and seen a lot of program leaders. You are exemplary. If there is anybody who can make sense of this problem, you have. Which is a technical problem on the one hand and it is also a political problem, as you know, with us and with the complications of the treaties and the complexion of Congress. If there is anybody that can make this thing go, I think it is you and your associates, General Hawley, Admiral Hood, and General Black. We have the highest regard for you.

And the country must succeed here. This is a doggone important program, and if we are successful, we are going to be able to defend our people. If we are not, we are going to see some disasters.

Let me ask you, general. We have gone through the fact that basically this array of theater systems is designed against fairly slow moving ballistic missiles. And if everything works, we will be able to shoot down the slow ones. We must presume our adversaries are going to either develop or acquire. I think the chairman of the R&D Subcommittee, Mr. Weldon, has described the possibilities and the prospects for acquisition by Third World nations of some sophisticated systems. So we must presume they will be acquiring some faster systems. We also have, of course, the national missile defense problem, which is going to require a fairly fast interceptor.

What are your ideas for evolving some of these systems or any of them into faster systems or perhaps adapting some other system into the fast interceptor that we are going to need ultimately perhaps even for the theater systems, but certainly for the national missile defense system?

General O'NEILL. Sir, I think the smartest strategy to accommodate a concern about the faster moving theater threat, like an ICBM in terms of velocity, would be to handle that within the scope of the National Missile Defense Technology Readiness Program. And if one is concerned about the pace with which that program is moving forward, one could increase the support of that particular technology readiness program.

One of the things that we see is that in the area of countermeasures there are a number of things that the enemy can do. I don't want to get in an open hearing to the specific weaknesses of U.S. missile defenses, but there are things that the enemy can do in addition to just going faster. He can throw out decoys and

jammers and things like that and that makes it more difficult for the Patriots and the THAAD's. That is why we are concerned about programs like boost phase interceptors, to make sure we have a robust technology program so that we can go after the target very early in flight.

Whether it is a fast mover or a slow mover, he still has to, he has to go through a boost phase. And if he is a fast mover, he boosts longer so he is more vulnerable during that phase. So if the adversary thinks he is going to be able to win against us by going faster, he is going to expose that booster to the attacks that we could offer in a defensive way with airborne boost phase intercepts, with space-based directed energy or airborne-directed energy programs like those the Air Force is working on.

So it is not a simple ride. But I think in terms of a ground-based countermeasure—a counter countermeasure to his countermeasure of going faster, I would tap the NMD readiness program and use that technology. And if I had to, I would move that technology into the theater and have the silos for a national missile defense-type system right in the theater, if it appeared to us that the threat warranted it.

Mr. HUNTER. Thank you.

Mr. WELDON. The gentleman has yielded back the remainder of his time.

The gentlelady from California, Ms. Harman.

Ms. HARMAN. Thank you, Mr. Chairman. General, I have some more questions about space-based interception, and I am building on some things that Mr. Edwards asked, but also some things that Mr. Cunningham just asked. I support the notion of exploring more technology having to do with boost phase intercept. I think we cannot rule it out and there was a floor amendment during consideration of the contract provision on defense to bar the use of space-based interceptors and I opposed it for that reason.

But let me ask you. You said, you just said in answer to Mr. Edwards that the use of, or exploration of space-based lasers was going to be zeroed out, if I heard you or closed down by fiscal year 1998. Did you say that?

General O'NEILL. Yes, ma'am.

Ms. HARMAN. My understanding of this technology, and I am not expert, but as you know many of the experts reside in or near my congressional district, is that space-based lasers are capable of attacking missiles as soon as they clear the clouds while they are still boosting and are at their most vulnerable stage. If this is true, why are you closing down or recommending closing down or zeroing out this program.

General O'NEILL. It was simply an affordability issue. We are down in—the technology leg of the program is down to approximately $170 million a year. And at that level, the next step in directed energy was to configure a space-qualifiable integration demonstration on the ground in a lab environment, and we looked at the costs of that and we were talking about costs approaching $100 million per year to retain that option, and we were not able to find those resources.

Ms. HARMAN. So it is just a resource question.

General O'NEILL. Yes, ma'am.

Ms. HARMAN. It is not you think the technology would not be interesting.

General O'NEILL. No, I think the technology is very high payoff and it concerns me greatly that we have marginally funded other advanced technology. This is our seed corn in this program and we are mortgaging the future.

Ms. HARMAN. General, I hear you and I think you are steering us in a very constructive direction, which is that if we have more funds and we may well, we should put them in the advanced technology category. And I would certainly suggest to both chairmen that if we are interested in doing that, we might consider space-based lasers as one of the options we would want to give some attention to.

Mr. WELDON. The suggestion is valid and I agree with the gentlelady.

Ms. HARMAN. And just a final comment, Mr. Chairman. I am glad that you are trying to promote at some reasonably convenient time the notion of a field trip or field hearings. I appreciate the fact that you are likely to come to California. We have a lot there that is directly relevant to this program and that I think would teach many of our Members a great deal.

Mr. WELDON. Would the gentlelady yield? As the gentlelady knows, I have committed that we will do a field hearing out in the California area and she is going to be helping us develop the agenda, I am sure. But we want to get around because we want members to understand based on facts and not emotion and rhetoric, but factual information and try to elevate this debate beyond what occurred in the 1980's where it was really an emotional debate based largely on rhetoric and accusations back and forth with little focus on reality. And we are trying to elevate it beyond that and so we appreciate that.

Ms. HARMAN. And, obviously, I agree and I commend you both for that. Let me just close with two comments. First of all, this is a bipartisan or a nonpartisan issue. I hope we will continue to treat it that way. I know that that is your intention in this committee.

Second, resources are limited. However much we would like to throw billions at this problem, they will be limited. I am hopeful we might find some more resources for this, and I say to you, General, that I agree with, Mr. Hunter. You are as qualified an expert in this Government as we have and I would trust your judgment about what our priorities ought to be. And this advanced technology pot is one that I think we ought to be investing more in if we can find the money.

Thank you, Mr. Chairman.

Mr. WELDON. I thank the gentlelady. General, this concludes our hearing and I want to just say to you on the record that I share the comments of both of my colleagues and you do have the highest respect of this subcommittee and the full committee and we pledge you our support to work with you.

The purpose of this hearing, as we said at the beginning, was to look at what we have gotten for our dollars. That story has not been told well here in the beltway. This is the first formal congressional hearing that I understand within the last 10 years where we

have actually given the people responsible for missile defense the chance to come in and tell us.

We have had a lot of criticism, but we have never given the leaders who have worked on these technologies the chance to come in formally and tell us what it is they have been doing and what we have gotten for our dollars. You have done a very eloquent job of stating the investment, and I would like to add, in reference to a report that was provided at the seats of members from James Abramson and Henry Cooper, entitled, "What Do We Get for our $30 Billion Investments in SDI and BMD." I would encourage our colleagues to read that document, as well as the general public.

I would say in closing once again, thanks to you and your staff of dedicated professionals. You have our ear. You have more than our ear, you have our willingness to work with you to more completely understand where you are going, where we should be going, and we are here to ask questions and to, if we are not giving you the resources, try to plus them up so we can be addressing these concerns that we have raised both today and in other hearings.

I think the ultimate answer to what we have gotten for our dollar, earlier today when a reporter asked me that question well, Congressman, do you really think the $30 billion has been money well spent? Perhaps it would best be fitting at this point in time to quote the Russian Deputy Foreign Minister Mr. Gregory Berdenkauf when he stated that the Soviet Union collapsed precisely because of our efforts in strategic defense initiatives.

What price tag can we put on the collapse of the former Soviet Union? Is it worth $30 billion? $60 billion? Perhaps this massive downsizing in the military, then, we can at least partly attribute to the investment we made in defense over the period of the 1980's. And to follow that up, Russia's former Ambassador to the United States, Vladimir Lukin, estimates that the SDI program hastened the U.S.S.R.'s demise by 5 years at least.

Now, these are not Republicans talking, these are not pro-defense Democrats talking, these are leaders of the former Soviet Union who have stated on the record publicly that our investment in strategic defense is what helped bring about the demise of the world's second greatest superpower. So I would say that our investment is a wise investment and is allowing us to move forward into the 21st century knowing that we are going to provide the best protection for our troops and the best protection for the people of this country.

Thank you, the hearing is now adjourned.

I am reminded, and am grateful for the reminder, that I neglected to thank the American Defense Preparedness Association, who provided for the arrangements of the entire operation. So there is a tremendous debt of gratitude to the fine folks who have been out there working this issue far longer than we have, and we do appreciate their cooperation and support, and so we thank them.

[Whereupon, at 5:00 p.m., the subcommittee was adjourned.]

[The following questions was submitted for the record:]

THAAD

Mr. WELDON. General O'Neill, could you let us in on discussions that have been occurring in the Executive branch on the proper number of THAAD interceptors to

be produced? What is the argument of those who wish to forbid the storage of THAAD interceptors in the Continental United States?

Could you tell us what data from what external sensors the THAAD's hardware and software are capable of receiving and utilizing? What difference to the THAAD's performance would receipt of tracking data from the BMEWS radars make? What difference would be made by data from Brilliant Eyes?

Please let us know for the record what the capability would be of a THAAD interceptor equipped with the kill vehicle of the Navy Upper Tier system and cued by the Brilliant Eyes system.

Gen. O'NEILL. In the past there has been some discussion of "limiting" the number of Theater High Altitude Area Defense (THAAD) interceptors as part of the demarcation discussions. But the number discussed has always been our planned purchase of THAAD—about 1400 missiles—and to my knowledge has not been questioned by anyone in the Administration.

The THAAD system is being developed to be highly inter-operable with joint and allied command and control air defense systems. Any tracking data which is distributed via the Joint Surveillance Network will be available to the THAAD objective system. But, until Anti-Ballistic Missile (ABM) Treaty demarcation on theater missile defense (TMD) limits has been resolved, the system is being developed without the capability to utilize external sensor data to cue the Theater Missile Defense-Ground Based Radar (TMD–GBR).

The autonomous THAAD system (including the TMD–GBR) is capable of meeting all user performance requirements. Ballistic Missile Early Warning System (BMEWS) tracking data would not significantly improve THAAD's capability against the short and medium range portions of the THAAD tactical ballistic missile (TBM) threat spectrum. However, against THAAD's long range threats, TBMs up to 3,500km, BMEWS could enhance THAAD's capability.

THAAD's capability against short to medium range TBMs is not significantly enhanced by Brilliant Eyes (BE). However, a capability against long-range TBM threats—up to 3,500km—is enhanced with BE. In addition, BE enhances THAAD's capability in a countermeasure environment.

An extensive review of a notional marinized THAAD interceptor was conducted by the Applied Physic Laboratory Johns Hopkins University and the Naval Surface Warfare Center, Dahlgren, Va. The analysis indicated that any cue will enhance the system's capability to counter theater ballistic missiles; however, the slower interceptor speed coupled with the AEGIS radar's shorter acquisition ranges, relative to GBR, limits its ascent phase capability. If the LEAP kill vehicle were to be used for THAAD, it would provide a land-based system with more extensive exoatmospheric coverage, because higher velocities would be achievable with the lighter weight LEAP kill vehicle. This would be offset by a loss of endoatmospheric capability, because THAAD has a seeker window while LEAP does not. Army requirements necessitate the THAAD seeker with its window to penetrate lower into the atmosphere for compatibility with a Patriot underlay in a two-tier defensive enclave (as detailed in the High Altitude Theater Missile Defense Operational Requirements Document). THAAD has both endoatmospheric and exoatmospheric capability and its kill vehicle is heavier than LEAP because of the requirement to operate within the atmosphere.

Navy requirements necessitate higher velocities for ascent phase kills by ships positioned within AEGIS radar range of hostile launch locations. Use of the THAAD kill vehicle would require the development of a new propulsion system, while LEAP is compatible with the existing Standard Missile. Comparative performance of the Army and Navy approaches is generally complementary, but quite scenario dependent. The cost effectiveness performance trades are being studied in the TMD Capstone and the Navy Cost and Operational Effectiveness Assessments.

SPACE-BASED LASER

Mr. WELDON. General O'Neill, you have at least five active, expensive programs for surface-launched interceptors for terminal phase. Yet as regards boost phase you have two obviously nonserious drawing board programs that involve flying airplanes over or near hostile territory waiting for someone to launch, and you have a mature space-based laser program that is officially to be phased out by 1997. Does anyone seriously think that antimissile defense can be done exclusively with terminal phase systems?

You have seen a report by leading executives of major aerospace companies—the people who build things—stating that their companies could put a missile-killing laser in orbit by 1998. How many missiles of the SS–18 type could one of these devices kill if it were at the right place at the right time? Since space-based laser

seems to be both effective and ready to build, are you reconsidering the decision to terminate the program?

Gen. O'NEILL. Effective terminal phase ground-based interceptor systems, especially when augmented with space-based sensors such as Space and Missiles Tracking System (SMTS), can be effective if deployed against limited attacks of relatively unsophisticated threat missiles. For National Missile Defense (NMD), a three site (East coast, West coast, and Hawaii) ground-based terminal system with several hundred interceptors can effectively defend against several tens of missiles. For a treaty complaint defense system consisting of 100 interceptors located only at Grand Forks, our defense is less capable. Against a START II level threat, neither of these defenses is effective, especially if the threat included sophisticated decoys and penetration aids along with the warheads. In the Theater, effective ground-based terminal defenses can be deployed in most situations against existing threats. The issue of continued effectiveness of Theater ground-based interceptors lies in future countermeasures that adversaries might use against our deployed Theater defenses.

Clearly, a space-based weapon system can dramatically improve performance of a ground-based terminal defense in both Theater and National missile defenses. Space-based interceptors (SBIs) have utility in NMD as a late boost-phase and mid-course defensive tier. Space-based lasers (SBLs) allow high performance early boost-phase intercept against both Theater and strategic threats of all types. In addition, SBLs can provide the high quality discrimination required to make SBIs fully effective in the mid-course ballistic missile defense (BMD) battle.

First it must be recognized that the SBL available in the 1998 time frame referred to in the referenced letter is not a full-fledged weapon system, but a demonstrator (pre-prototype). As such, it has limited range and number of shots compared to a full-scale system. Even with these limitations, that demonstrator (which we believe could be on orbit in a slightly later time frame—circa 2000—given a clear commitment and adequate funding) could indeed negate an SS–18 class missile. In fact, such a demonstrator, as planned, could negate several SS–18 class missiles. A full constellation of approximately 20 full-scale SBL platforms could provide continual global defensive coverage against multiple launches of any Theater, Strategic or Submarine Launched ballistic missile from anywhere on the globe.

I agree that the SBL is the most effective system that the Ballistic missile defense Organization (BMDO) is currently pursuing in all scenarios evaluated. In my mind, the main issues with SBL have been the significant investment required to achieve full proof of principle and the treaty compliance issues associated with testing and later deployment. On the other hand, I remain convinced that the BMDO should continue to pursue an SBL program at least to the next logical step in its development. That step is the design, fabrication, and fully Treaty compliant ground test of the space-ready demonstrator (pre-prototype) described in the letter from industry referenced above. This gives us the option to test in space the same pre-prototype hardware tested on the ground. If this development program were to occur and be successful, I believe that we could have a fully-capable constellation of 20 SBLs deployed by the end of the first decade after the turn of the century.

NATIONAL TEST FACILITY

Mr. HEFLEY. Can you outline for us the contribution of the National Test Facility at Falcon Air Force Base in Colorado Springs to our Ballistic Missile Defense Program?

Gen. O'NEILL. The National Test Facility (NTF) provides a comprehensive simulation environment critical to the Ballistic Missile Defense Organization (BMDO). Managed by a Joint Program Office, the NTF serves as a unique, government-owned, "level playing field" where representations of missile defense systems can be prototyped, integrated, and tested in an unbiased manner to determine their combined performance and assess their joint interoperability. The NTF is the only facility where the Services' missile defense systems can be electronically integrated in a common environment. With its robust computational assets, the NTF can provide integrated modeling and simulation, and test and evaluation services, which provide cost-effective approaches to the issues that face missile defense developers and warfighters. The NTF is an essential component in the analysis, design, development, testing, fielding, and employing cost-effective and credible missile defense systems.

Mr. HEFLEY. More specifically, can you identify what services the NTF provides to the Department of Defense and the Services for both National and Theater Ballistic Missile Defense?

Gen. O'NEILL. Key National Test Facility (NTF) services include:

Provide a comprehensive simulation environment to support ballistic missile defense acquisition (research, design, development, analysis, test and evaluation) programs;

Provide real-time simulations to explore missile defense operational concepts;

Provide Battle Management/Command, Control, and Communications (BMC^3) and Command, Control, Computers, Communications & Intelligence (C^4I) expertise in support of the integration of system elements. This helps ensure that BMDO-managed and Service-executed programs are interoperable on the battlefield.

Serve as the DoD Center for modeling Defense Intelligence Agency approved missile defense threats and phenomenology;

Conduct joint interoperability simulation and testing at the inter-service, multiple system level;

Conduct inter-service command and control wargames and participate in theater level exercises;

Conduct system-specific, joint, and combined missle defense studies and analyses;

Host international participation in missile defense concept development and provide simulation tools for cooperative approaches to missile defense; and

Provide users with a government-owned verification, validation, and accreditation capability for assessing other potential modeling and simulation tools.

Mr. HEFLEY. What role does simulation now play in the development of new technologies and new concepts of war fighting? How does the work done at the NTF contribute to those efforts?

Gen. O'NEILL. Use of the National Test Facility's (NTF's) capabilities has increased almost fourfold over the last 18 months. Simulation supports the Program Executive Officers and their Program Managers (the material developers), as well as the Commanders-in-Chief (CINCs) of the Unified Commands (the warfighters). Moreover, the NTF's involvement in international cooperative initiatives has nearly doubled. Nations such as Japan, Israel, and the United Kingdom, as well as groups such as NATO, are increasingly aware of the worldwide ballistic missile threat.

Models and simulations are an integral part of a well-designed test and evaluation program that supports the development of new missile defense technologies. For example, intercept tests against realistic targets can cost $100M to $200M to conduct. It is simply too expensive to test all required combinations. Modeling and simulation is crucial to understanding full weapon system performance through extensive simulated engagements and to getting the most benefit from costly hardware tests by providing in-depth analysis of test results.

The NTF has a significant, networked, man-in-the-loop simulation capability that supports evaluation of theater missile defense concept of operation (CONOPS) and related C^4I structures. Not only does this support the warfighter, it also helps identify technological shortfalls that must be addressed. Some specific capabilities developed and/or hosted at the NTF include:

The Theater Planning Tool (TPT) supports ballistic missile defense deployment planning, systems effectiveness analysis, and test planning assessment. It allows very flexible and rapid reconfiguration of simulated architectures. In Fiscal Year (FY) 1994, US Forces Korea and the U.S. Army Air Defense Artillery School used TPT to evaluate positioning of the Patriot system for defense against theater ballistic missiles in Northeast Asia. TPT was also used successfully aboard the USS Eisenhower in a US Atlantic Command (USACOM) training exercise to evaluate the positioning of sensor resources in response to various threat scenarios. In FY 95, the BMDO Theater Missile Defense (TMD) Cost and Operational Effectiveness Analysis (COEA) will use TPT.

The BMC^3 Element Support Center (BESC) provides a centralized environment for integration, testing, and analysis of products developed throughout the BMC^3 community. It is the focal point for real-time support of BMC^3 experiments and demonstrations covering the Services' BMC^3 systems and components. This enables BMDO to evaluate the effectiveness and interoperability of various C^4I elements on a simulated battlefield.

The NTF Wargame Simulator provides a capability for evaluating large-scale, human-in-control, missile defense exercises. The NTF provides the wargame facility that has individual command and control positions and models the threat elements. The NTF is electronically linked to other wargame facilities for access to detailed models and human-in-control positions needed for individual exercises. BMDO has conducted several major TMD wargames and exercises in FY95 with more scheduled.

Abacus is a portable test tool that provides distributed, real-time, hardware-in-the-loop exercise capabilities in a real-world or synthetic environment. Abacus successfully injected simulated threats into shipboard radar systems during a USACOM Joint Task Force (JTF) exercise. This exercise proved that a synchronized,

distributed simulation could be employed in an operational exercise and provide an excellent training tool for theater missile defense operations.

The Special Programs Center (SPC) is a national-level center for threat modeling, with over 120 authorized government users. The SPC produces highly accurate missile kinematics models, which can portray how an adversary might deploy weapons against targets. In addition, SPC produces Defense Intelligence Agency-approved threat tapes and scenarios. These tapes/scenarios are used in a variety of missile defense simulations and models. Customers use SPC products to analyze cost, operational effectiveness, training, planning, engineering, and other activities related to missile defense. The SPC maintains an active relationship with intelligence agencies, which provide the SPC with the latest foreign tactics, targeting data, and weapons parameters. This helps ensure, credible, up to date, models and scenarios.

BESim is the government reference model for the Brilliant Eyes (BE) Simulation System. It provides a validated mechanism for examining desired system performance and the impacts of user proposed changes to the system baseline.

Mr. HEFLEY. The Contract with America calls for a renewed effort to implement ballistic missile defense. Should the committee decide to move in that direction, what role would NTF play in that effort?

Gen. O'NEILL. The National Test Facility (NTF) is well-suited to and highly-capable of supporting Missile Defense. Some of the key areas where the NTF would be a valuable asset to such efforts are listed below:

Development of a Concept of Operations (CONOPS).—Currently, the NTF wargame effort is involved in developing a CONOPS for theater missile defense (TMD). The Commanders-in-Chief (CINCs) and their components actively participate in missile defense exercises and develop concept of operations for responding to a ballistic missile attack. The wargames were originally designed to support National Missile Defense (NMD) development. They still contain all the tools necessary to support a more robust NMD effort.

Architecture Analysis.—The NTF has developed a simulation tool called the Theater Planning Tool (TPT) which can quickly examine theater missile defense architectures and determine the optimal approach based on the current threat. It is not difficult to adapt this tool for NMD use.

Battle Management and Command/Control/Communications (BMC^3) Laboratory.—The NTF has developed a lab that analyzes the required BMC^3 components.

Threat Generation.—The NTF also has a lab that can generate any required threat. This lab is ready today to support the generation of any threat, whether it is against an NMD or a TMD-based architecture.

Studies and Analysis.—The NTF has supporting tools and on-site analysts who are educated in both NMD and TMD architectures.

Integrated Test.—The NTF, with its communication links across the continental US (and the ability to link anywhere in the world) has exercised key ballistic missile defense capabilities by linking to other simulation facilities and operational units. Additionally, the NTF has developed tools to support integrated and live fire testing that can be easily upgraded to support both TMD and NMD architecture testing.

Mr. HEFLEY. A recent GAO report on the use of NTF capabilities by civilian agencies noted the NTF's supercomputers are "older machines whose performance and cost cannot match those of more advanced computers * * *" Were the Congress to authorize a more robust BMD effort, wouldn't an upgrade of the supercomputers at NTF be essential?

Gen. O'NEILL. Yes, an upgrade is essential, both to meet rapidly-growing BMDO requirements and to replace older equipment with more cost-effective, efficient, and supportable machines. The Ballistic Missile Defense (BMDO) is presently preparing a plan to accomplish the upgrades necessary to meet existing and planned Missile Defense acquisition requirements.

Mr. HEFLEY. The same GAO report also identified a number of civilian agencies who are potential users of NTF supercomputing resources. Wouldn't it be appropriate to upgrade the facilities and allow other federal agencies or private sector users to have access to them?

Gen. O'NEILL. While the National Test Facility (NTF) can support other users, the needs of the BMDO and the DoD must have priority to ensure successful mission accomplishment for those agencies. Any excess capacity can be offered to meet the needs of other (non-DoD) federal agencies. The use of federal assets by "private sector" entities is covered under various statutes.

NATIONAL MISSILE DEFENSE EXCURSIONS

The information follows:

The Department has identified three excursions for acceleration of the National Missile Defense (NMD) program as described below:

Excursion 1—NMD Emergency Response System Option

This option provides the shortest path to an early contingency deployment. An additional $450 million dollars in Fiscal Year (FY) 1996 and a like amount in FY97 could position the National Missile Defense (NMD) program to complete an emergency deployment by October 1999. The Emergency Response System (ERS) would provide a capability to defend the United States against a limited Rest of World threat. The actual deployment would cost between 3 and 4 billion dollars. Increased funding in FY96 and FY97 would be used to accelerate the current interceptor kill vehicle development program, modify an existing booster to provide better early capability, and add testing to reduce risk. Additionally, increased funds would be used to allow both kill vehicle contractors to participate in at least one intercept flight prior to a downselect. Hardness tests for the kill vehicle components and hover testing of the kill vehicles would also be added. In parallel with the ERS effort the technology readiness program for the objective NMD system (which includes the Space and Missile Tracking System) would continue.

Excursion 2—NMD 3+3 Program Option

This option reduces risk in the current program while emphasizing both early deployment activities and objective capability development. An additional $450 million per year for FY96 through FY98 could position the National Missile Defense program to begin a three year contingency deployment in October 1998. The 3+3 early deployment option would provide a capability to defend the United States against Rest of World threats. If no early deployment is authorized, this option would continue on the development path toward the objective system with a deployment decision opportunity by January 2002. Increased funding would be used for hover testing to reduce risk and early nuclear hardness testing to establish the ability of the Exo-atmospheric Kill Vehicle (EKV) to perform in a nuclear environment. Two EKV contractors would be maintained through intercept flight prior to a downselect. A robust test program would be instituted that would reduce risk by conducting 2 flight tests per year. There would also be increased emphasis on the system hardware/software-in-the-loop test capability—both in terms of earlier development and increased usage. This option also includes development of a dedicated booster which would be integrated with the EKV in FY98.

Excursion 3—NMD Accelerated baseline Program Option

This option reduces risk in the current program while accelerating the deployment opportunity for the objective NMD system. An additional $450 million per year for FY96 through FY98 would allow the National Missile Defense program to make an objective system deployment decision by October 2001 (a 2 year acceleration from the current baseline). It also retains an October 1997 early deployment decision opportunity. Increased funding would be used for the EKV and ground-based radar (GBR) programs. Two EKV contractors would be funded through the third quarter of FY98. Unlike the previous options, which feature only one flight test per contractor before downselect, both contractors would fly their kill vehicles twice prior to downselect. To offset the possible consequences of the concurrency inherent in an accelerated schedule, additional emphasis is placed on risk reduction through extra flight tests, hover testing, and nuclear hardness testing. Increased funding would be used for the kill vehicles, boosters, and targets required to accomplish a robust test program that would reduce the risk of an accelerated program. There would also be increased emphasis on the system hardware/software-in-the-loop test capability—both in terms of earlier development and increased usage. A dedicated ground-based interceptor (GBI) booster would be developed beginning in FY96 which would be designed for high performance, wide coverage, and staging that would allow engagement planning flexibility.

The Department has chosen not to recommend any of these options over the current NMD Baseline program which invests $400M/year in NMD technology and readiness, but recognizes the desire of some in the Congress to either deploy a nearer-term NMD system or, alternatively, to leap-frog current system capabilities and be prepared to deploy a more capable NMD system much sooner than can be done under current funding constraints. It should be noted that it is possible (and perhaps even desirable) to choose parts of one or several of the above excursions in order to obtain a more robust, well-rounded NMD program.

MISSILE DEFENSE AND JOBS

The information follows:

Our estimate of the number of jobs attributable to missile defense is approximately 21,000 for Fiscal Year (FY) 1994 including 2,000 government and 4,450 subcontractor personnel. Our estimate for FY95 is approximately 15,000 jobs including 1,800 government and 2,200 subcontractor personnel.

TREATY COMPLIANT VARIANTS AND OPTIONS RELATIVE TO MISSILE DEFENSE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
Washington, DC, Thursday, February 29, 1996.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. The subcommittee will come to order. We meet today to take testimony from Gen. Malcolm O'Neill and the appropriate leadership of the Air Force and the Army on treaty compliant variants and options relative to missile defense. Unfortunately, as my colleagues can see from the attendance, the table is empty, and I say, unfortunately, with a heavy heart, because this administration chose to deinvite or actually forced not to attend and placed a gag on Gen. Malcolm O'Neill and our other two witnesses, who had planned and who were very excited and who were very willing to attend and testify today, General Linhard from the Air Force and General Garner from the Army.

Let me first of all say that this subcommittee has been one of the most bipartisan subcommittees in the Congress. Over the past year, I have held two field hearings, in fact, in the districts of minority members of this subcommittee. I would say I know of no other subcommittee chair perhaps who has taken that great length to reach out to members of the minority side. In our deliberations last year on defense bills, we involved the minority on a regular basis in terms of H.R. 7 and defense issues. In fact, our success in missile defense was largely a bipartisan effort, and that is why the bill that was passed last year, the authorization bill, had such a strong vote and, in fact, I think was consistent with what the administration said it wanted to do.

It was interesting that President Clinton vetoed the defense authorization conference report with our national missile defense component used as a reason for the veto on December 28, and then, the first week of January, General O'Neill, the administration's point person on missile defense, came out publicly and said that we had at least two variants of existing systems that could provide us with a national missile defense capability within the limitations of the ABM Treaty. That was 1 week or so after the President had vetoed the authorization conference report.

We had planned on having a series and we are still planning on having a series of hearings this year on missile defense, the most robust series ever. Contrasting it to the last session of Congress where we had no hearings on the missile defense programs and priorities, in this session of Congress, we plan on having 12 hearings. Ten of them will be in this subcommittee, two at the full committee level.

In meeting with General O'Neill and discussing our agenda of committee hearings, we decided that one of those topics that needed to be addressed early on was the subject of whether or not the statement by our military officers in fact were true that we did have a capability within the ABM Treaty to have a national missile defense system that we could deploy very quickly. And in fact, on December 15, General Linhard came into my office and briefed me on that Air Force variant, and that was to be one of the topics today. The Air Force variant of the existing Minuteman system would have a total cost of less than $3 billion, according to their figures.

The second variant was an Army variant. In fact, General Garner from the Army called my office and asked to brief me at 4:30 this past Tuesday. Sometime during the afternoon on Tuesday, General Garner's office called my office and said that he had been told that he was not allowed to brief Members of Congress on national missile defense, and therefore, he would not be coming to my office to brief me on the Army's variant of their missile defense option, and that was the second presentation that was to have taken place today.

Each of these two briefings were a part of an effort that I wanted to bring to the attention of the full subcommittee to let members know that what we did last year was in fact logical; it was right; and, in fact, it proved what I think is the ultimate, and that is that the administration had no legitimate basis to veto the defense authorization bill last year, certainly using the ABM Treaty as a reason.

Why, then, do we proceed today when we were told first of all last Friday that General O'Neill could not attend, and then, on Monday, General O'Neill said, well, I have been told that Secretary White is reconsidering allowing me to come in and then held hostage until noon yesterday as to whether or not this hearing will take place and finally having Secretary White call me right before our 2 o'clock hearing saying no, we are not going to have anyone come in? This was about the same time that members of the minority party, by the way, were being briefed in room 2337 in this building by leadership from the administration and the Pentagon.

I decided to give them another chance and to allow this committee to proceed partly because we are under a tremendous time constraint. We have a very short period of time in which to mark up our portion of the authorization bill; we have a very short period of time to consider the various options. And having a robust schedule of near 10 hearings covering the full range of Army, Air Force, and Navy capabilities; covering the threat assessment; the command and control assessment; covering the issue of the Russian perspective, the ABM compliance perspective, and covering issues of what O'Neill's requests were this year that we had to have a ro-

bust series of hearings that was consistent with the use of the hearing rooms and with the schedule of the full committee.

The administration chose not to allow their witnesses to come in. To me, that is outrageous, and it is the first time that I know of when the administration has gagged the military deliberately. General O'Neill as recently as last night and this morning wants to come in. As a matter of fact, we have his testimony, and we have the testimony of General Linhard, and we have the testimony of General Garner. They were prepared; they are ready; and they have solid messages to give this committee so that we can make a decision on key priorities for this year, yet they are not here, and they are not here because they do not want to be here; they are not here because this administration and the Pentagon does not want to allow the message to come forward that there are options that are treaty-compliant.

Now, the administration's spin is well, we do not want them up there until Dr. Kaminski and until the Secretary of Defense have a chance to brief Members of Congress on the programs. Let me just say this to you, folks: Nothing could be further from the truth because this hearing was not about program issues. General O'Neill knew full well what this hearing was about. This program was about existing capabilities. It had nothing to do with being a predecessor to the hearing at which we are going to see Dr. Kaminski. In fact, if that is the administration's contention, then I would ask them why Admiral Owens appeared yesterday before the Senate Armed Services Committee. If the administration's position in denying General O'Neill the opportunity before this subcommittee is based on the premise that they wanted no one to testify on the Hill prior to that testimony of Kaminski and the Secretary of Defense, then why did Admiral Owens appear yesterday before the SASC in a hearing that was fully open to the public?

These are questions that unfortunately have no answers. We will proceed; we will eventually get our witnesses here. I will be discussing with the chairman of the full committee that if this happens again, my request will be to issue subpoenas so that we will have whatever witnesses we want in this hearing room to discuss those priorities. This administration and this President is not going to let decisions be made in a vacuum. This President is not going to force this Congress to do what happened 2 years ago, and that is to have Members vote on missile defense issues without a complete understanding of the facts. We will have the facts, and we will have them from those technical people who are best equipped to give us the answers. If it requires us to subpoena them on an official basis, then I am prepared to take that action.

I thank my colleagues for showing up and at this point in time would like to ask first of all Mr. Bateman if he has any comments before he leaves.

Mr. BATEMAN. No.

Mr. WELDON. Thank you for showing up.

I would ask our colleagues on our side if they would like to make some brief opening statements. Would any of my colleagues like to be recognized at this point in time?

Jim.

Mr. MCHUGH. Mr. Chairman, let me just state very briefly that I share your concerns, and I too am stunned by this development. To have the subcommittee involved with this kind of important work be shut out and forced into this vacuum by an administration apparently for political purposes is outrageous. I want to commend you, Mr. Chairman, for having the courage to go forward and also for having, I think, the open attitude that you have demonstrated in trying very hard to make this a bipartisan committee. The issues before us are of critical importance to the citizens of this country, and as I have mentioned, to politicize the process strictly to protect the questions of treaty compliance is not the way these kinds of issues ought to be addressed.

So I thank you, Mr. Chairman, for making this effort and assure you that all of us stand behind you in the important work that you have laid out.

Mr. WELDON. I thank my colleague, and I thank all of our members for showing up. Just let me repeat for the record and for the media that might be here that as the administration and the leadership on the minority side of the full committee attempt to put their spin on what has happened here, let me repeat that this is a total and complete gag. If the administration's policy was that no official from the Pentagon should appear before a congressional committee prior to Dr. Kaminski and Secretary Perry coming in, then I ask the question why was Admiral Owens in front of the Senate Armed Services Committee yesterday? Why was he present? And with that, why was General O'Neill not allowed to come here today?

If, in fact, there was an order that briefings can take place, and members are allowed to have briefings, why was General Garner told on Tuesday that he could not come up on the Hill to brief me even though he had requested that briefing to be given to me? Why was he told in the afternoon on Tuesday that he could not brief me on the Army's NMD capabilities?

These are questions the administration has no answer to. The answer is, this administration does not want to hear the facts. They do not want the American people to know what the technical people in this administration have to say about missile defense, and I will not stand for that. If I have to sit through 30 hearings where I subpoena every witness into this hearing room, I will do that this year, and I am prepared to accomplish that, and I am prepared to bring on our colleagues whether or not the minority side agrees.

And I appreciate our one colleague for showing up with us today, Mr. Taylor. I know there were gestures made by the leadership of the full committee to encourage minority members not to show up, and that is unfortunate. Once again, as I said when I started this hearing, I have traveled to two minority committee members' districts this past year to hold field hearings, one in Rhode Island and one in California. I will challenge that to any other subcommittee chairman. It is outrageous that this administration would go to these lengths to deny us the facts on which to base our ultimate decisions about protecting the American people. That is what outrages me most.

At this time, I would like to turn to our colleague Mr. Hostettler for any comments he would wish to make.

Mr. HOSTETTLER. Thank you, Mr. Chairman, and thank you for calling this hearing. The first role of the Federal Government is to provide for the security of its people, and I believe that this function must supersede all others. Defense is the critical element of this function. When I ran for Congress in 1994, I made it clear that it was my view that with the end of the cold war, the United States moved into a period of greater uncertainty; not less. This view is endorsed by the people of the Eighth District of Indiana.

Serving as a member of the National Security Committee, I have found that my pre-Washington perceptions were not in error. Time after time, I have attended hearings both open and classified detailing the complex threats our Nation is subject to. These threats are real. Nothing has become more clear to me than the reality that the United States needs to deploy a ballistic missile defense. When a petty dictator can be so bold as to utilize Russian-made MiG fighters to shoot down civilians in Cessnas only miles from our border, can we really say that we will not face missile threats? China is threatening Taiwan; North Korea is developing a missile capable of reaching the United States; Russia is not stable and still maintains an enormous arsenal of intercontinental missiles. Saddam Hussein, Muoammar Qaddafi, and others clearly hostile to the United States are in power.

Mr. Chairman, it is only a matter of time before someone threatens the United States with ballistic missiles, and it does not matter whether this threat can be backed up with reality or even whether we can retaliate, and I think that Dr. Payne's testimony yesterday is clear to that factor. But the actual deployment of missiles is not the issue. The idea that coercion and deterrence can allow these petty dictators to move at will is the issue, and we have got to be willing to call their bluff. We will if we have deployed defenses. I find it completely irresponsible for the administration to not put these hearings as a top priority. I think the American people deserve better.

Thank you, Mr. Chairman. I yield back the balance of my time.

Mr. WELDON. I thank my colleague for that opening statement and would agree with him totally. We heard yesterday in our hearing members of the minority party tout the administration's new national missile defense priority of 3-plus-3, which if the President were serious about that option would have allowed him to sign the defense authorization bill, because our date certain for deployment was, in fact, 2003. We all know that the real reason that the President does not want to sign the bill or even allow these hearings is because he does not want to deploy anything, and that is really unfortunate given the fact that the Russians already have an existing ABM system, which they have upgraded on at least three occasions.

Let me also for the record state at the outset that this hearing was planned weeks ago, and it was planned back in December when I had a meeting of the subcommittee members and I went over with them a suggested very aggressive schedule for this year involving oceanography issues; involving issues involving dual-use technologies; involving issues of fire and life safety in the military;

FFRDC's; laboratory oversight; missile defense; and a whole host of other issues.

This was not a hearing that was put together at the eleventh hour; it was a hearing that was established. Last week, I talked to General O'Neill. He called me on Thursday or Friday, and he said Congressman, would you object when I come in next Thursday if I do not have General Linhard and General Garner at the table with me? He said I would like to have them in the room, but I would like to have all the testimony come from BMDO because I think BMDO should be the lead on whatever options we have relative to national missile defense. I said General, that is fine. If you want to have them sit behind you, I have no problem with that. So we agreed to that on the phone, and we ended the conversation, and the understanding as of that point in time was that he would be in as the lead witness presenting the testimony which he has prepared, which I am submitting to all the members of the subcommittee here today, and then, he would call upon General Garner and General Linhard for backup support.

We were given a call late Friday night that Secretary White had said he could not attend the hearing and would not be able to be with us. On Monday morning when we returned from our February break, we called the Pentagon, and we were told that they were in fact reconsidering that decision and that in fact they might allow the General to attend. Unfortunately, no word came back as of Wednesday morning, and I told the staff we have to find out whether or not this hearing is going to go forward because we have people coming in from around the country; we have members who are planning their schedules, and we would like to know whether or not we are going to have witnesses.

It was not until we put that heat on that I finally received a call from Secretary White at 11 or 11:30 yesterday morning saying no one would be here. To my further dismay, when I questioned Secretary White about why General O'Neill would not be allowed to appear, he said it was because they wanted Dr. Kaminski to appear on the Hill before anyone else in the Pentagon came over, and again, I mention the fact that yesterday, Admiral Owens appeared before the Senate Armed Services Committee.

When I further asked Secretary White why General Garner had been told not to come in to testify or brief me on the Army variant, he asked me who General Garner was. Now, this is the Deputy Secretary of Defense asking me who General Garner was. I said, well, General Garner is an Army general, a three-star. He said, well, who is he? What does he do? And I said, well, General Garner heads up the missile defense initiatives for the Army. So here is the Deputy Secretary of Defense not even knowing who the person was who was responsible for missile defense activities in the Army. Perhaps I should not then wonder why he would have no problem in canceling the testimony before this subcommittee.

The point that I am trying to make here is very clear, and it is very definitive: we will not tolerate this action. It happened one time; it will not happen a second time, and I will put the administration on notice if we in fact have this occur again, I will use the authority as a subcommittee chair in cooperation with our full committee chair to request and require subpoenas to get our witnesses

in here, even though they want to testify, to give them the cover of a subpoena to allow them to come in and present information to the American people.

Now, if we had had our witnesses here, my colleagues—you have been given their charts in front of you just so that you all know that they had their prepared testimony—you would have heard something like this. Now, we heard from the minority yesterday that the administration is touting a 3-plus-3 plan, but if you look at the testimony by General O'Neill, he has another option. He has a 2-plus-2 option. And he actually says we can deploy a missile defense system that BMDO already has studied in their tiger team approach that would give us a 4-year deployment. That was going to be in General O'Neill's briefing—for $3 billion by the way, I might add, not the tens of billions of dollars that President Clinton said would be required in vetoing the defense authorization bill.

Also, if we had had our witnesses here today, the Air Force would have briefed us—and you have a copy of the Air Force briefing—on a variant they have of the existing Minuteman system, and the Air Force would have told us that within 5 years, they could provide modifications to the existing Minuteman system at a cost of approximately $3 billion that would give us a protection of all 50 states for a limited strike involving up to 10 missiles with a 90-percent effective rate, and that is exactly what we were shooting for.

In addition, the Army would have come in, and General Garner would have testified that the Army has a variant that could be deployed within 4 years at a cost of $5 billion, again using an existing system and again from a single point, which makes it treaty-compliant. Now, the problem the administration has is they now know that what they said last year is a lie, and they knew that all along, by the way, and that is that the services have options available today that are totally treaty-compliant. So when they raised the issue of the ABM last year, that was a red herring, and now, we have the administration on the record—unfortunately not here to verify that but on the record—in fact telling us that. In fact, I have some headlines from some of the major media sources where the Army and the Air Force have gone public in the month of January outlining the fact that their proposals are, in fact, ABM Treaty-compliant.

Now, I would ask my colleagues to review these briefs. We will at some point in time invite the appropriate officials who are not here back, and we will have this briefing, and I can assure my colleagues it will not be a briefing just for Republican members. It is a sad day in the history of this country when the Clinton administration plays the level of politics it is currently playing with the defense of our Nation and our troops. It is outrageous; it is unconscionable; it is immoral, and as the chairman of the R&D committee, I will not tolerate it.

Do any of my other colleagues have any other statements they would like to make before I ask the staff if they have any comments they would like to make? Does anyone else want to make any comments?

Chris, do you have anything?

I thank you all for coming today. Unfortunately, we could not go into more depth, but for the public at large, we will make the briefing material available for any of you who would like to have copies of it. And General O'Neill is scheduled to come in next Thursday, assuming that is what mood Bill Clinton and General Perry are in at that time as to whether or not they will untie the gag around General O'Neill's mouth, but assuming the fact that that gag will be untied or cut, they are scheduled. You know, the members of the minority like to talk about gag rules. Assuming they are willing to cut that gag off of the mouth of General O'Neill, we will have General O'Neill here in person so that we can save his sign until that hearing.

Thank you all. The hearing is now adjourned.

[Whereupon, at 10:40 a.m., the subcommittee was adjourned.]

[The following information was submitted for the record:]

USAF

Ballistic Missile Defense of North America, Alaska and Hawaii

February 1996

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Bottom Line

~~USAF~~

- Essential to maintain Theater Missile Defense momentum
- *IF* Nation desires a National Missile Defense ...
  - Near/mid-term capability
  - Ballistic missile defense against rogue nation threats
- *THEN*, Air Force has an option that
  - Provides single site coverage of North America and Hawaii
  - Achieves operational status within 4 years
  - Offers low cost (< $2.5B), minimal program risk
  - Allows for growth
- *BY*:
  - Maximizing existing systems and infrastructure
    - Consistent with DODD 5000.1: modify existing systems before developing new
  - Focusing on sensors and kill vehicle

Air Force NMD Proposal

Approach

- *Leverage existing systems/hardware*
- *Maximize existing Infrastructure*
- *Reduce risk*
- *Minimize investment*
- *Early deployment option*
- *Treaty compliant*

Architecture

- *Minuteman booster*
- *Kinetic Kill Vehicle (KKV)*
- *Upgraded BMC3*
- *UEWR (existing sites)*
- *X-Band dish radar (3 CONUS,1 WESTPAC)*
- *DSP/SMTS (when available)*

Performance

- *Rogue nation threat (T1 - T3 threats)*
- *50 state coverage*
- *Growth potential to T4 threats*

Management

- *JPO reporting to BMDOAE*
- *Prime contractor with TSPR*

Minimum Investment Approach

	'96	'97	'98	'99	'00	'01
	$400	$500	$550	$600	$200	$0
System	ATP			Flt Test	Deploy	IOC
NMD Interceptor	Upgrade		Production			
Booster (MM)				Production		
Sensors (X-band/ dish)		Upgrade	Integration			
BMC3	Upgrade					

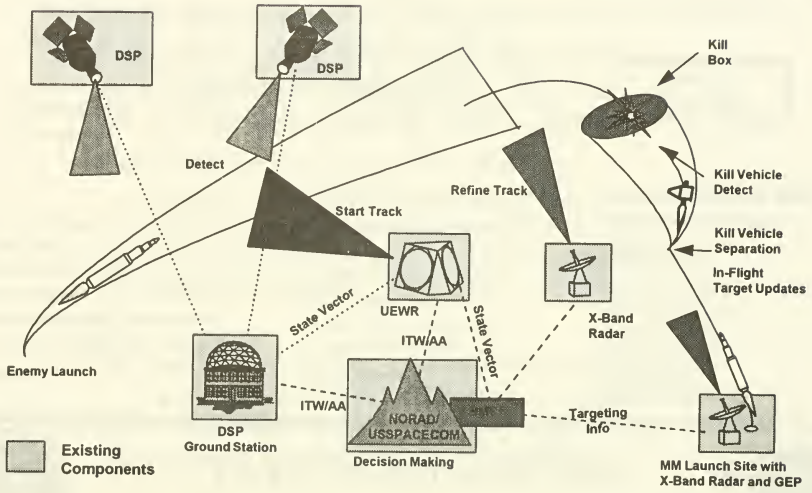
$2-2.5B
(Total Cost)

20 Interceptors fielded by end of 2000

Note: Dollars in millions.

System Architecture

USAF

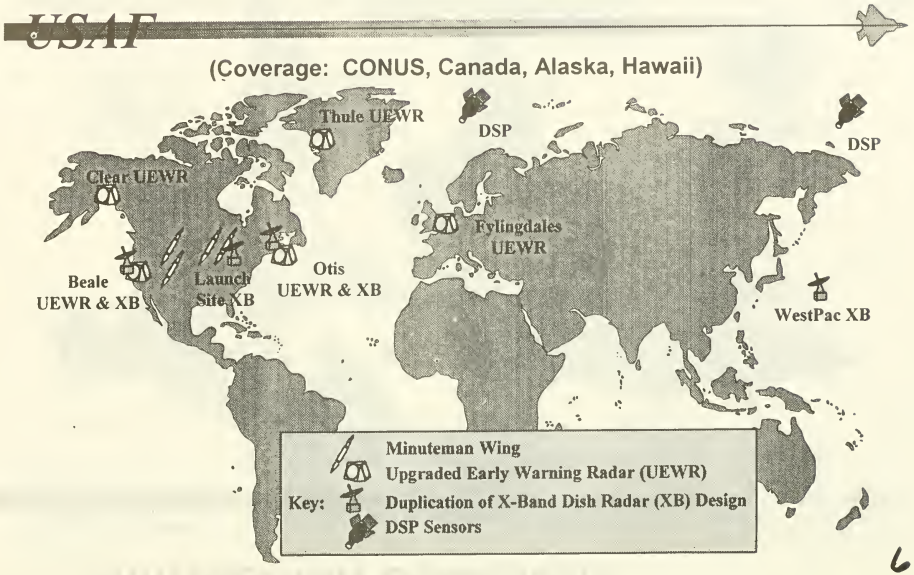


Minuteman Locations

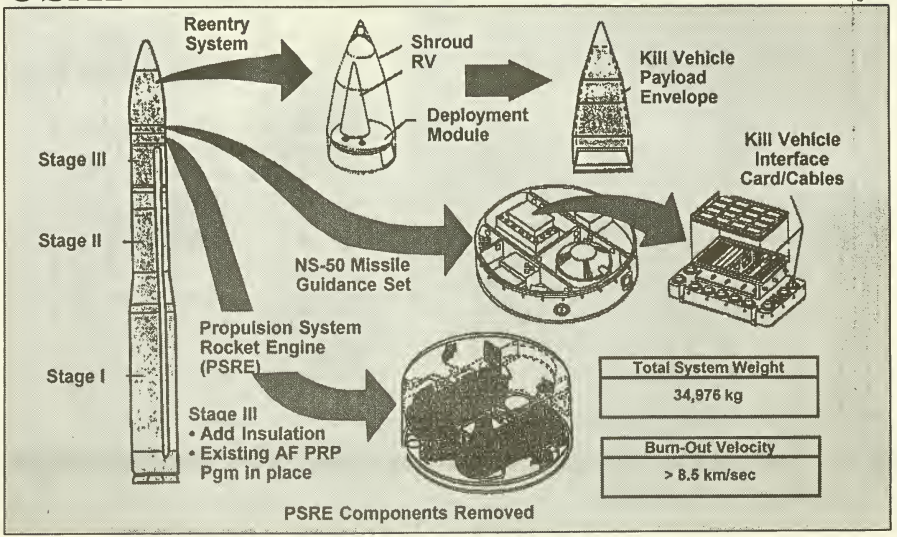
USAF

5

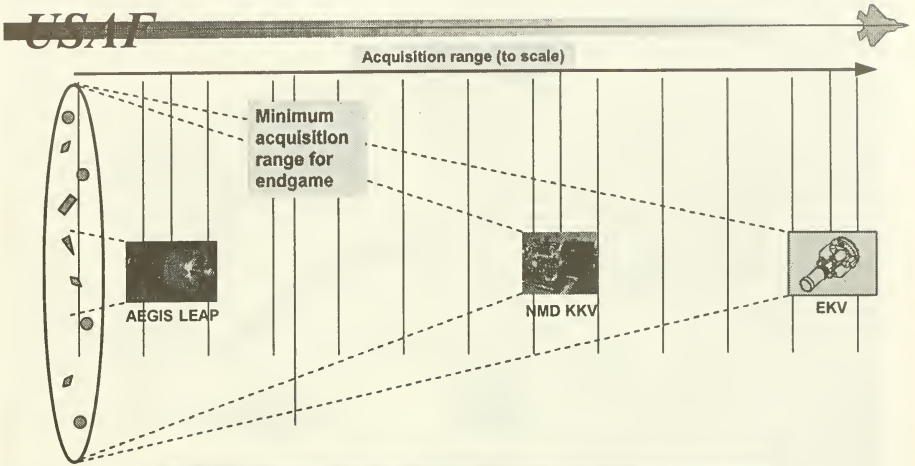
MM and Sensor Locations



Minuteman Missile



Seeker Comparison



NMD KKV easily meets rogue nation threat.
Minuteman compatible with all kill vehicle candidates.

Single Site Performance

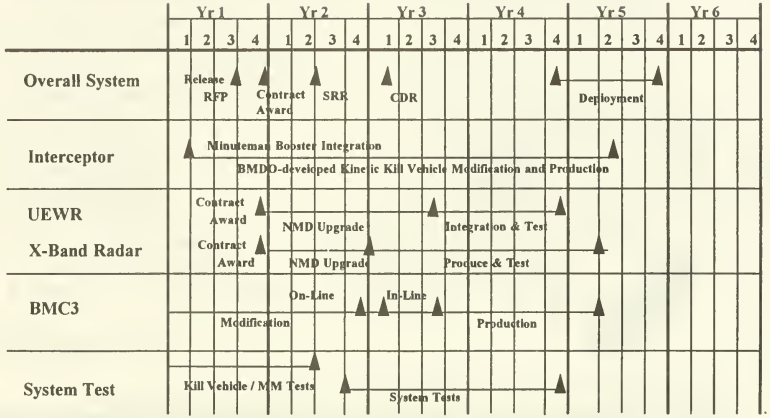
USAF

- 20 MM Interceptors
  - Multiple shot engagement
    - Shoot-look-shoot where possible
- UEWRs
  - BMEWS
  - Pave Paws
- X-Band Radars
  - Launch Site
  - East & West Coasts
  - WestPac
- Rogue Nation Threat
  - Unsophisticated RVs
  - Limited quantity
  - NK threat requires forward deployed radars for coverage of Alaska & Hawaii

Very High Confidence of Zero-leakers

Schedule

USAF



Operational system in four years

Development Approach

USAF

- Leveraged Development
  - *Existing* Booster (MM)
  - *Existing* C^3 (NORAD & MM)
  - *Existing* Infrastructure (MM Wg)
  - Upgrade *Existing* Kill Vehicle
  - Upgrade *Existing* EW Radars
  - X-band Radars Based on *Existing* Design
- Cost: 20 MM KKV Architecture -- $2-2.5B (2000)
- Growth Potential: 100 MM Upgraded KKV--$3.5-4.5B (2002)

Conclusion

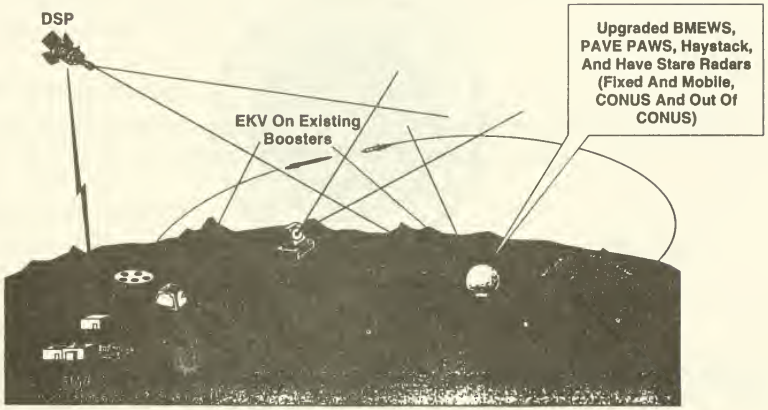
~~USAF~~

- Any NMD must be operationally effective and affordable
  - Congressional direction is rogue nation threat
  - Documented DOD requirement is more robust
- Air Force Approach
  - Leverage existing systems, maximize existing infrastructure, reduce program risk, minimize concurrency, minimize costs
- Minuteman Option
  - 20 MM interceptors by 2000, growth path for additional MM if req'd
  - AF option achievable within current funding limits
- Summary
  - If the Nation desires a NMD system to defend against a limited threat, a MM-based system, even from a single site, can effectively and affordably protect North America, Alaska & Hawaii

12

NMD Emergency Response System
Option (2+2)

EMERGENCY RESPONSE SYSTEM ARCHITECTURE


DSP
Upgraded BMEWS, PAVE PAWS, Haystack, And Have Stare Radars (Fixed And Mobile, CONUS And Out Of CONUS)
EKV On Existing Boosters

mj-50854D / 021095

OPTION: ERS DESCRIPTION

Strategy / Focus

- Rapid Early Deployment
  - Additional $450M / Year (FY 96 - FY 97)
  - 2 Year Development / 2 Year Deployment
  - Maximum Utilization Of Existing Assets And Infrastructure (Sensors And Boosters)
- NMD Baseline Continues On Path To Objective System
- Long Lead Items Procured Prior To Early Deployment Decision
- 2 EKV Contractors Funded Through FY 97
- GBR Deployment Delayed To Objective Timeframe
- 3 EKV Flight Tests Per Year FY 98 - FY 99

Elements	Early	Objective
Weapon	• MMIII + EKV	• GBI
Sensor • Active	• Existing Sensors	• GBR + Existing Sensors
• Passive	• DSP	• SBIRS-GEO + SMTS
BM/C^3	• Full Sensor Integration, Survivable Communications	• Objective Command Center, Robust Communications

Low Risk

Key Differences From Baseline

Risk Reduction: ($370M)

- 2 EKV Contractors Funded Thru FY 97 Flight Tests
- Robust Flight Testing - 3 Flights / Year (Post Deployment)
- Hover Testing Of EKV Prior To Flight
- EKV Hardness Testing
- Robust Simulation / HWIL Testing
- Safety Net (NMD LEAP Variant)

ED Unique / LL Procurement: ($430M)

- EKV Hardware (FY 97)
- Existing Sensor Hardware
- MM III Booster
- Deployment Preparation (FY 97)

*Acceleration: ($100M)**

- 3 Month Acceleration Of Objective Deployment Opportunity Achieved By
  - SE&I Activities Increased To Integrate Elements
  - BM/C^3 Accelerated To Support In-line Flight Testing In FY 97

Procurement / Deployment Costs

- Approximately $3B For Single Site Defense Of All 50 States

* Assumes Concomitant Acceleration Of SMTS

mj-53571 / 022896

3

M-950912-04U (C) (5255)

PRUDENT PROTECTION AGAINST CATASTROPHE (U)

HOME BURNING DOWN!

FAMILY DWELLING FIRE

Casualties:	Infrequent
Replacement Cost:	$100,000
Insurance Cost:	$600 / YR / Dwelling

Fire Insurance Policy

LOW PROBABILITY BUT CATASTROPHIC WITHOUT FIRE INSURANCE

PROTECTION AGAINST PERSONAL DISASTER

BALLISTIC MISSILE ATTACK!

SINGLE NUCLEAR EXPLOSION OVER LARGE CITY

Casualties:	Millions of People *
Replacement Cost:	Hundreds of $ Billions
BMD Cost:	$2 / YR / Person **

* U.S. Urban Population Vulnerability (GPO 1978)

** Over 20 yr Duration

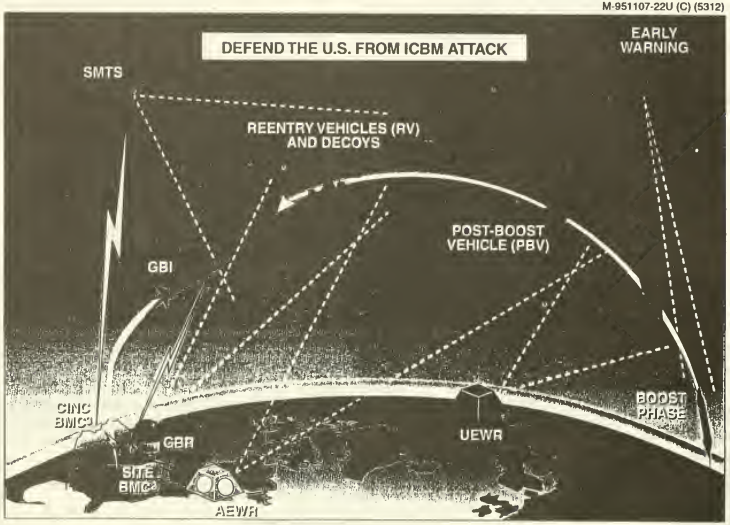
National Missile Defense

LOW PROBABILITY BUT CATASTROPHIC WITHOUT PROTECTION

PROTECTION AGAINST NATIONAL DISASTER

UNCLASSIFIED

NMD ARCHITECTURE (U)



PREVIOUS APPROACH TO INTERIM CAPABILITY (U)

- Single Site Defense at Grand Forks
- Slow Interceptor
- No AEWRs
- Did Not Defend Alaska and Hawaii

UNCLASSIFIED

SINGLE SITE CONUS COVERAGE THIRD WORLD THREATS (U)

Coverage
North Korean Threat
Grand Forks Site

Coverage
Libyan Threat
Grand Forks Site

SINGLE SITE GBR PROVIDES ENHANCED EFFECTIVENESS FOR PRE AND POST COMMIT DATA
(> 90% OF CONUS FOR NORTH KOREAN THREAT AND > 70% OF CONUS FOR LIBYAN THREAT)

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

5

CURRENT ARMY APPROACH TO INTERIM CAPABILITY (U)

- Single Site Defense at Grand Forks
- Fast Interceptor
- AEWRs
- Upgraded BMC3
- Defends All 50 States

UNCLASSIFIED

SINGLE SITE UNITED STATES COVERAGE (U)

UNCLASSIFIED

6

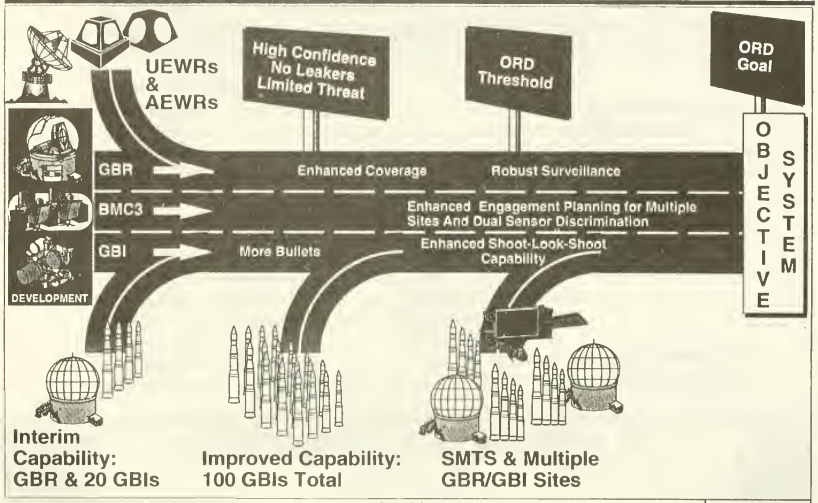
PROPOSED
EVOLUTIONARY NMD APPROACH (U)

- Deploy Initial, Ground Based, ABM Treaty Compliant NMD System For United States Protection Against Limited Ballistic Missile Attacks By End Of 200X Using:
  - Integrated System Fully Tested And Validated
  - UOES GBIs (20), GBR, BMC3 At A Single Site
  - Advanced And Upgraded EWRs
  - Existing Space Based Sensor Cueing
- Add/Improve GBIs (80) At Single Site
- If Administration Negotiates A Change To The Treaty, Add Ground Based Sites And Improved Space Based Sensor System (SMTS) To Be Deployed In ~ 2003 For United States Protection Against Larger And/Or More Sophisticated Ballistic Missile Attacks Consistent With Threat Evolution
- If Negotiations Fail And Threat Requires It, Withdraw As Directed From ABM Treaty Per Article XV, And Deploy Assets Necessary To Defeat The Threat

EVOLUTIONARY APPROACH TO A COST AND OPERATIONALLY EFFECTIVE NMD

UNCLASSIFIED

A ROADMAP TO THE OBJECTIVE NMD SYSTEM (U)



UNCLASSIFIED

UNCLASSIFIED

8

EVOLUTIONARY NMD APPROACH (U)

SINGLE SITE (1999/2000)	SINGLE SITE EXPANDED (2002/2003)	MULTIPLE SITES	SPACE BASED ELEMENTS	
20 GBI GBR BMC3 UEWR AEWR	Plus 80 GBIs	Two Add'l Sites	SMTS	Space Based Weapons
$ 5B	+ $ 0.5B *	+ $ 4B	+ $ 9B**	+ $ 15–20B**

ARMY COST MODELS BASED UPON 40 YEARS EXPERIENCE IN BMD
- **SAFEGUARD Deployed Within Cost And On Schedule**
- **ERIS Flight Demonstration Within 3% Of Cost Estimate**

* DEPLOYMENT, TEST & EVALUATION, AEWR, GBR UPGRADE: + $2.5B
** AF COST ESTIMATE

UNCLASSIFIED

INTERIM DEVELOPMENT AND DEPLOYMENT SCHEDULES (U)

INTERIM CAPABILITY	FY96	FY97	FY98	FY99	FY00	FY01
FOUR YEAR PROGRAM • $671M • FY99 Capability • 10 Integrated Ground Tests • 10 Integrated Flight Tests *High Concurrency*	DEVELOPMENT: Integrated Test → Integrated System Verification → Integrated System Validation △ Interim Capability DEPLOYMENT: *Long Lead* △ Begin Construct △△ BOD					
	662	1391	1621	1429		
FIVE YEAR PROGRAM • $746M • FY00 Capability • 12 Integrated Ground Tests • 12 Integrated Flight Tests *Low Concurrency*	DEVELOPMENT: Integrated Test → Integrated System Verification → Integrated System Validation △ Interim Capability DEPLOYMENT: *Long Lead HW/SW* △ Begin Construct △△ BOD					
	598	711	1291	1392	1207	
SIX YEAR PROGRAM • $821M • FY01 Capability • 15 Integrated Ground Tests • 15 Integrated Flight Tests *Low Concurrency*	DEVELOPMENT: Integrated Test → Integrated System Verification → Integrated System Validation △ Interim Capability DEPLOYMENT: *Long Lead* △ Begin Construct △△ BOD					
	586	585	599	1197	1516	693

INTERIM CAPABILITY ON PATH TO OBJECTIVE SYSTEM

10

NMD EVOLUTIONARY PROGRAM (U)

SUMMARY

- DEMONSTRATED TECHNOLOGY AVAILABLE NOW
- ON PATH TO OBJECTIVE SYSTEM
  - All Interim Components Are Part Of Objective System
  - Designed To Interface With Space Based Elements
- COST AND OPERATIONALLY EFFECTIVE
- DEFENDS ALL 50 STATES
- TREATY COMPLIANT SINGLE SITE OPTION

RECOMMENDATION

- FOCUS FUNDS ON EVOLUTIONARY PATH TO OBJECTIVE SYSTEM

UNCLASSIFIED

BALLISTIC MISSILE DEFENSES

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
JOINT WITH MILITARY PROCUREMENT SUBCOMMITTEE,
Washington, DC, Thursday, March 7, 1996.

The subcommittees met, pursuant to notice, at 10:10 a.m., in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the Subcommittee on Research and Development) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. The subcommittee will now come to order. We have an extremely distinguished panel today, and it is a special honor for me today to introduce our first witness, who is here, I guess, for the last time in his official capacity as the head of the Ballistic Missile Defense Office [BMDO], someone who needs no introduction but who has received the strongest possible support from both Republicans and Democrats in this Congress.

And before I introduce him, however, I would like to introduce a special guest who is here from the West Coast. And I introduce him at this time, and we will have a press conference at 1:30. He is known in the music world for being one of the finest rock guitarists in the country. In fact, he was the lead guitarist for the Doobie Brothers and for Steely Dan. He has 2 Grammies; 6 Grammy nominations; 12 gold records; 8 platinum records. He has written extensively for the LA Times, the Washington Times, Forbes, Money, Billboard magazines. He has 2,100 records. He is now a composer and writes many of the theme songs and compositions movies. He wrote the original score for Beverly Hills 90210, but more significantly, he is an expert on missile defense as a citizen. He is here because he is going to chair our citizens' advisory committee on missile defense, and I would ask him now to rise to be acknowledged: Jeff Skunkbaxter. Skunk, it is good to have you here. Thank you.

With that, General O'Neill, it is an extreme honor and pleasure to have you here. As I said earlier, the members of this subcommittee and the full committee, both subcommittees, have been graced by your leadership and, as you know, the strong support that we have given you in a bipartisan way because we believe in what you have been telling us; we believe that you are an honest broker. You tell it like it is. We do not always agree with you as you know, and that is okay; this is a democracy. But we always know we are get-

ting a straight answer, and that is all we can expect or hope from, from our military leaders: that we will always get a straight answer. And it is especially pleasant to have you here in person as opposed to just your nameplate, so we welcome you today before our subcommittee.

Frankly, I am deeply surprised and chagrined by the actions undertaken by this administration to try to undermine those of both parties in this Congress and those in the administration who believe that the American people need and deserve a modest but effective national missile defense. Department of Defense [DOD] witnesses and officials have been muzzled and prevented from testifying, I think, on false pretenses. The release of information on the ballistic missile threat has been timed to maximize its impact on the political process in the Congress as we saw last year and in the process support a preconceived policy line emitting from the White House, and certain White House staff have wildly inflated the anticipated cost of even modest National Missile Defense [NMD] options.

Clearly, the American people deserve better. They deserve the facts regarding NMD options. They deserve to know that BMDO, the Army, and the Air Force agree that a single-site Anti-Ballistic Missile [ABM] Treaty-compliant NMD system can be deployed within 3 to 5 years for a cost of approximately $5 billion or less. Why, then, does this administration continue to claim that such a system would cost $30 billion or more? They deserve to know that such a system could be effective in defeating an attack of a small number of warheads, those delivered by a rogue nation or by China or by an accidental or unauthorized launch by Russia. The administration claims these scenarios are farfetched but ask my colleagues: is it not true that North Korea is developing the Taepo Dong II missile, which may be capable of reaching targets in the United States? Are we just supposed to write off the citizens of Alaska and Hawaii? Do they not merit protection? Is it not true that China has threatened to attack Los Angeles if the United States intervenes in the mainland's attempt to intimidate and subjugate the people of Taiwan? Does not China have the wherewithal to deliver on that threat? Is it not true that the Russian nuclear command and control system is undergoing tremendous strains, strains which it was never designed to withstand? Is there not rampant crime and corruption in the Russian military and increasing instances of disloyalty on the part of Russian officers?

These are serious issues, but unfortunately, the administration has chosen to assume the ostrich's position: head in the sand, much like we see in the recent revelation by the Washington Post of the transfer of technology from Russia to Iraq regarding advanced accelerometers and gyroscopes that can only be used in a long-range ballistic missile

Turning to the substance of today's hearing, the recently-completed Department of Defense [DOD] review of missile defense resulted in the reduction in BMDO's budget over the Future Years Defense Plan of approximately $2 billion. Much of that cut came from the Theater High Altitude Area Defense or [THAAD] program, which up until the recent review DOD had asserted was the centerpiece of its Theater Missile Defense [TMD] strategy. Accord-

ing to press reports, the DOD now plans to budget approximately $13.5 billion for Ballistic Missile Defense [BMD] over the FYDP 1997–2001, down from the $16.6 billion figure that the Clinton administration just last year had planned to spend over the same 5 years and significantly less than the amount budgeted for BMD by the bottom-up review. The 1997 budget request is $2.799 billion, as General O'Neill will describe in a moment.

The review reaffirmed the administration's previous policy position: that deployment of a national missile defense system is unwarranted. Thus, no funds to actually produce or deploy such a system are included in the fiscal year 1997 request or over the Future Years Defense Plan [FYDP]. This should surprise no one, given the political capital expended by the President and his lieutenants in opposing legislation to deploy an effective NMD system by a date certain. The review did recommend increasing the fiscal year 1997 budget request for NMD from $400 million to $508 million. However, this figure is significantly lower than the amount approved by Congress in fiscal year 1996 for NMD, $746 million, and the amount budgeted for NMD dips to $400 million in fiscal year 1999 and subsequent fiscal years under the administration's plan.

DOD's NMD program has been renamed deployment readiness instead of last year's technology readiness, although whether there is a difference in the technical content of the program remains to be seen. Regarding TMD programs, the review resulted in major changes to the DOD's TMD plans and programs. For example, DOD has retained three TMD systems in its core program: Patriot, Patriot Advanced Capability [PAC]–3, Navy Lower Tier and THAAD. However, under DOD's plan, the scheduling for deploying each of these systems has been slipped, in some instances dramatically. Furthermore, the Navy Upper Tier system, which has strong bipartisan support in the Congress, is not included in the DOD's core program, and there is no commitment by DOD to actually deploy this system. Finally, the THAAD schedule has been delayed by 4 years or more in order to foster a competitive flyoff between THAAD and Navy Upper Tier, despite the communications we are all aware of from General Luck.

The DOD's plan is inconsistent in many respects with the TMD program direction and deployment dates required by law and the National Defense Authorization Act for this fiscal year which President Clinton signed into law. First, Navy Upper Tier is not included in the core TMD program and is not scheduled for deployment under the DOD plan, whereas Congress directed that it be so included. It is the law of this land, signed by this President, yet not dealt with in this year's budget. And second, the DOD plan would slip the dates for deploying these systems in at least one case by 4 years or more. If you or I violate the law, we get punished, and here, we have an administration that has no intent of following the law of this Congress that he signed into law this fiscal year for our authorization bill.

Allow me to mention just a few of the specific Theater Missile Defense [TMD] programmatic adjustments made as a result of the missile defense review. With respect to THAAD, the Congress directed deployment of a deployable prototype in fiscal year 1998. DOD's plans conform to this guidance. However, Congress directed

deployment of the objective THAAD system in fiscal year 2000, but the DOD's plans call for delaying deployment until 2006, if ever. In fact, the latest DOD plan adopts a recommendation of the Joint Requirements Oversight Council that a fly off competition between THAAD and Navy Upper Tier be held in approximately 2004 with only the winner being deployed. The review thus recommended a $2 billion reduction in THAAD over the FYDP.

The DOD's plan for Navy Upper Tier does not include funds to actually procure and deploy this system, although Public Law 104–106 calls for deployment of a deployable prototype capability in fiscal year 1999 and an initial operational capability in fiscal year 2001. The budget request for Navy Upper Tier in fiscal year 1997 is $58 million, an increase of $30 million over DOD's request last year but almost $150 million below the amount approved by Congress in fiscal year 1996. As noted above under DOD's plan, THAAD and Navy Upper Tier would undergo a competitive fly off after the turn of the century, and only one system would be procured for deployment after such a competition.

The DOD's plan for Navy Lower Tier calls for deployment of a deployable prototype in fiscal year 2000 versus fiscal year 1997 in Public Law 104–106 with an initial operational capability in fiscal year 2002 versus fiscal year 1999 in Public Law 104–106. The DOD review resulted in a $110 million increase in funding over the FYDP for Navy Lower Tier.

The schedule for deployment of Patriot Advanced Capability or PAC–3 has slipped by 1 year from fiscal year 1998 to fiscal year 1999 as a result of the review. Again, Congress directed deployment in fiscal year 1998, and this president signed that bill into law. I was encouraged when I learned late last year that the Department was undertaking a review of missile defense. This provided an opportunity for the administration to reflect upon the growing missile threat and to take steps to accelerate the most promising systems. Instead, they have gutted one program, THAAD, which just a few months ago was considered the centerpiece of the Department's TMD strategy. They have refused once again to endorse deployment of even a modest NMD system, and they have slipped the schedules for even those systems that they now claim are their highest priority, PAC–3 and Navy Lower Tier point defense systems.

In my opinion, this is unacceptable. We are now reviewing our options in terms of possible legal action against the administration following the law of the land, and we will take whatever appropriate action that we feel is necessary this year. But in the end, the American people have a right to know all the facts. Unlike 2 years ago, when we did not hold one hearing on missile defense, we held four last year; we will hold 10 this year. We will get every piece of available information on a factual basis out to the public from intelligence estimates—not just from our own sources but from those other sources that will give us real data upon which we can base our final decisions. We will bring every witness available in this country to Washington to inform this Congress and the American people about the threat, about our options, about ABM, and about our efforts to work with the Russians in a joint effort

to have them understand that it is perhaps more important for them to have missile protection than it is for us.

Before introducing our witnesses this morning, I would like to yield to the distinguished chairman of the Military Procurement Subcommittee, Duncan Hunter, who has been an outstanding leader in this effort, for any opening remarks he would like to make. Following Mr. Hunter's remarks, I would like to yield to the distinguished ranking minority members of the Procurement and Research and Development [R&D] subcommittees for any comments they would like to make.

[The prepared statement of Mr. Weldon follows:]

OPENING STATEMENT OF REP. CURT WELDON
CHAIRMAN, RESEARCH AND DEVELOPMENT SUBCOMMITTEE
BALLISTIC MISSILE DEFENSE HEARING
MARCH 7, 1996

The Research and Development and Military Procurement Subcommittees jointly meet today to receive testimony from Department of Defense witnesses on the Administration's FY 97 budget request for ballistic missile defense (BMD).

Before proceeding further, I'd like to take this opportunity to commend Lieutenant General Malcolm O'Neill, the Director of BMDO, for his service to the Nation. As many of you know, General O'Neill is planning to retire in the coming months. General, you have been very helpful to us in our efforts to accelerate and strengthen the Nation's BMD programs. I'm sure I speak for all my colleagues when I say, "Best of luck; job well done; and thank you for your leadership and dedication."

Frankly, I am deeply surprised and chagrined by the actions undertaken by this Administration to try to undermine those of both parties in the Congress and those in the Administration who believe that the American people need and deserve a modest, but effective National Missile Defense. DoD witnesses and officials have been muzzled and prevented from testifying on false pretenses; the release of information on the ballistic missile threat has been timed to maximize its impact on the political process in the Congress -- and in the process support a pre-conceived policy line emanating from the White House; and certain White House staff have wildly inflated the anticipated cost of even modest NMD options.

Clearly, the American people deserve better.

They deserve the *facts* regarding NMD options. They deserve to know that BMDO, the Army, and the Air Force agree that a single-site, ABM Treaty-compliant NMD system can be deployed within 3-5 years for a cost of approximately $5 billion. Why, then, does the Administration continue to claim that such a system would cost $30 billion or more?

They deserve to know that such a system could be effective in defeating an attack of a small number of warheads -- those delivered by a rogue nation or by China or by an accidental or unauthorized launch by Russia. The Administration claims these scenarios are far-fetched. But I ask my colleagues, is it not true that North Korea is developing the Taepo Dong II missile which may be capable of reaching targets in the United States? Are we just supposed to write-off the citizens of Alaska and Hawaii? Do they not merit protection?

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Turning to the substance of today's hearing, the recently-completed DoD Review of Missile Defense resulted in a reduction in the BMDO budget over the Future Years Defense Plan (FYDP) of approximately $2 billion. Much of that cut came from the Theater High Altitude Area Defense (THAAD) program -- which up until the Review DoD had asserted was the "centerpiece" of its TMD strategy. According to press reports, the DoD now plans to budget approximately $13.5 billion for BMD over the Future Years Defense Plan (FY 97 through FY 2001), down from the $16.6 billion figure that the Clinton Administration just last year had planned to spend over the same five years and significantly less than the amount budgeted for BMD by the Bottom Up Review. The FY 97 budget request is $2.799 billion, as General O'Neill will describe in a moment.

The Review reaffirmed the Administration's previous policy position that deployment of a National Missile Defense (NMD) system is

unwarranted; thus, no funds to actually produce or deploy such a system are included in the FY 97 request or over the FYDP. This should surprise no one given the political capital expended by the President and his lieutenants in opposing legislation to deploy an effective NMD system by a date certain.

The Review did recommend increasing the FY 97 budget request for NMD from $400 million to $508 million. However, this figure is significantly lower than the amount approved by Congress in FY 96 for NMD ($746 million), and the amount budgeted for NMD dips to $400 million in FY 99 and subsequent fiscal years under the Administration's plan. DoD's NMD program has been renamed "deployment readiness" instead of last year's "technology readiness", although whether there is a difference in technical content of the program remains to be seen.

Regarding TMD programs, the Review resulted in major changes to the DoD's TMD plans and programs. For example, DoD has retained three TMD systems in its "core" program: Patriot (PAC-3), Navy Lower Tier, and THAAD. However, under DoD's plan, the schedule for deploying each of these systems has been slipped, in some instances dramatically. Furthermore, the Navy Upper Tier system, which has strong, bipartisan support in the Congress, is not included in the DoD's "core" program and there is no commitment by DoD to actually deploy this system. Finally, the THAAD schedule has been delayed by four years or more in order to foster a competitive "fly-off" between THAAD and Navy Upper Tier. Luck).

The DoD's plan is inconsistent in many respects with the TMD program direction and deployment dates required by law in the National Defense Authorization Act for Fiscal Year 1996 (Public Law 104-106). First, Navy Upper Tier is not included in the "core" TMD program and is not scheduled for deployment under the DoD plan, whereas Congress directed that it be so included. And second, the DoD plan would slip the dates for deploying these systems, in at least one case by four years or more.

Allow me to mention just a few of the specific TMD programmatic adjustments made as a result of the Missile Defense Review.

With respect to THAAD, the Congress directed deployment of a "deployable prototype" in FY 98; DoD's plans conform to this guidance. However, Congress directed deployment of the "objective" THAAD system in FY 2000, but the DoD's plans call for delaying deployment until 2006, if ever. In fact, the latest DoD plan adopts a recommendation of the Joint Requirements Oversight Council (JROC) that a "fly off" competition between THAAD and Navy Upper Tier be held in approximately 2004, with only the "winner" being deployed. The Review thus recommended a $2 billion reduction in THAAD over the FYDP.

Navy Upper Tier. The DoD's plan does not include funds to actually procure and deploy the Navy Upper Tier system, although Public Law 104-106 calls for deployment of a "deployable prototype" capability in FY 99 and an initial operational capability (IOC) in FY 2001. The budget request for Navy Upper Tier in FY 97 is $58 million, an increase of $30 million over DoD's request last year, but almost $150 million below the amount approved by Congress in FY 96. As noted above, under DoD's plan, THAAD and Navy Upper Tier would undergo a competitive "fly-off" after the turn of the century and only one system would be procured for deployment after such a competition.

Navy Lower Tier. The DoD's plan calls for deployment of a "deployable prototype" in FY 2000 (versus FY 97 in Public Law 104-106) with an initial operational capability (IOC) in FY 2002 (versus FY 99). The DoD Review resulted in a $110 million increase in funding over the FYDP for Navy Lower Tier (from $1.4 billion to $1.5 billion).

and

Patriot Advanced Capability-3 (PAC-3). The schedule for deployment of PAC-3 has slipped by one year (from FY 98 to FY 99) as a result of the Review (Congress directed deployment in FY 98).

I was initially encouraged when I learned late last year that the Department was undertaking a review of missile defense -- this provided an opportunity for the Administration to reflect upon the growing missile threat and take steps to accelerate the most promising systems. Instead, they have gutted one program (THAAD) that just a few months ago was

considered the "centerpiece" of the Department's TMD strategy; they have refused once again to endorse deployment of even a modest NMD system; and they have slipped the schedules for even those systems that they now claim are their highest priority (the PAC-3 and Navy Lower Tier point defense systems).

Before introducing our witnesses this morning, I would like to yield to the distinguished chairman of the Military Procurement Subcommittee, Duncan Hunter, for any opening remarks he'd like to make at this time. Following Mr. Hunter's remarks, I'd like to yield time to the distinguished ranking minority members of the Procurement and R&D Subcommittees for any comments they'd like to make. Mr. Hunter?

Mr. WELDON. Mr. Hunter.

STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. Thank you, Mr. Chairman, and let me thank you for your leadership in this area, because I think it is clear that lack of missile defense is our greatest security weakness. And on that point, the one question that we asked the Secretary of Defense yesterday in his appearance before us was a question that most Americans do not have the answer to and that is, if we had an incoming ballistic missile coming in to any American city, could we stop it? It recently became clear to me in a focus group that we had in San Diego that most Americans—educated, intelligent Americans—think because of all of the talk that we have engaged in over the years about missile defense that we can stop an incoming ballistic missile coming in to an American city. And so one of the first questions I asked the Secretary yesterday was can we, and he answered no. And I think it is important to continue to ask that very simple question before our distinguished panels every time we get an opportunity, because it appears to me, Mr. Chairman, that about 90 percent of the American people think that we have a defense against incoming ballistic missiles.

I, too, am struck by the fact that the Department's plans for ballistic missile defense are in many ways similar to their plans for modernization overall, and we saw a good deal of that plan yesterday. I think I can summarize these plans in one simple word: underfunded. The Department chose to slash funding for ballistic missile defense, including their highest priority theater missile defense programs, in order to pay for other modernization programs. And this point was conceded by General Shalikashvili, Chairman of the Joint Chiefs of Staff, when in a cable that was ultimately leaked to the Washington Times he told General Luck, the commander of U.S. forces in Korea, the following, and I quote: "The primary objective of the missile defense review, that is the reduction of missile defense, is to free up dollars for critically underfunded areas of recapitalization." If that is not proof that the emperor has no clothes, I do not know what is.

What is even more astounding to me is that senior officials in the Department knowingly rejected the advice of a U.S. war-fighting commander in chief in arriving at its conclusion to slash funding for the THAAD system. Gen. Gary Luck, the commander in chief of U.S. forces in Korea, knows the North Korean missile threat firsthand. He sees it every day. The Washington bureaucrats who sit on Joint Requirements Oversight Council [JROC] are not under the gun like General Luck is. And what did General Luck want? He wrote to General Shalikashvili to strongly urge that funding for THAAD be sustained and the schedule for deploying THAAD not be slipped, as recommended by the JROC. General Shalikashvili and Under Secretary of Defense Paul Kaminski rejected General Luck's plea.

I find this episode highly troubling. The last time we had a similar episode was when General Montgomery, the commander in Somalia, asked the Department of Defense for tanks. He knew he had

to have tanks because the thin-skinned vehicles he had would not handle the antitank weapons that the warlords in Somalia were equipped with. We refused to give it to him. Washington second-guessed a theater commander, and the result was disaster.

So I find this episode highly troubling. I think it tells me that DOD is not taking advice from places it should and that its programs are purely dollar-driven based on a woefully-underfunded Defense top line. And yesterday they told us that we are going to get well on this Defense top line, but it is going to be somewhere after the turn of the century. The next guy is going to do it. That is not a recipe for sound decisionmaking on critical Defense programs such as ballistic missile defense.

So, Mr. Chairman, I thank you for yielding. I look forward to the testimony, and I might add I thank the distinguished ranking member of the full committee, Mr. Dellums, for taking time from his briefings with the service chiefs of staff. I know he has a briefing with General Fogleman in about half an hour and will have to leave for that, but I do thank the gentleman for accommodating us by being here with as much presence as possible.

[The prepared statement of Mr. Hunter follows:]

OPENING STATEMENT OF REP. DUNCAN HUNTER
CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE
HEARING ON BALLISTIC MISSILE DEFENSE
MARCH 7, 1996

Thank you, Chairman Weldon. I, too, welcome our witnesses today

I am struck by the fact that the Department's plans for ballistic missile defense are in many ways similar to their plans for modernization overall. And I can summarize those plans in one simple word: Under-funded.

The Department chose to slash funding for ballistic missile defense -- including their highest priority theater missile defense programs -- in order to pay for other modernization programs. This point was conceded by Chairman of the Joint Chiefs of Staff General Shalikashvili when, in a cable leaked to the Washington Times, he told General Luck, the commander of U.S. force sin Korea the following: (quote) "The primary objective [of the Missile Defense Review] is to *free up dollars* for critically underfunded areas of recapitalization." (end quote)

If that's not proof that the emperor has no clothes, I don't know what is.

What is even more astounding to me is that senior official in the Department knowingly rejected the advice of a U.S. warfighting CINC in arriving at its conclusion to slash funding for THAAD. General Gary Luck, the commander in chief of U.S. forces in Korea, knows the North Korean missile threat first-hand. He sees it every day. The Washington bureaucrats that sit on the JROC aren't "under the gun" like General Luck is. And what did General Luck want? He wrote to General Shalikashvili to strongly urge that funding for THAAD be sustained and the schedule for deploying THAAD not be slipped, as recommended by the JROC. General Shalikashvili and Under Secretary of Defense Paul Kaminski rejected General Luck's plea.

I find this episode highly troubling. It tells me that DoD is not taking advice from places it should, and that its programs are purely dollar driven,

based on a woefully under-funded Defense top-line. That's not a recipe for sound decision-making on critical defense programs such as ballistic missile defense.

I thank the Chairman for yielding, and look forward to the testimony.

Mr. WELDON. I thank our distinguished acquisition chairman. And let me add to that: I also want to thank Mr. Dellums and Mr. Spence for being here. It shows the commitment of the leadership of the full committee that they would take time out to make their presence be known here, their interest known, and they are both involved in a very substantive way in this debate. Even though we may disagree, they are involved very heavily in the factual bases upon which our decisions will ultimately be made.

With that, I will yield to the gentleman from South Carolina, Mr. Spratt.

Mr. SPRATT. Thank you very much, Mr. Chairman. And let me say to our distinguished panel, and particularly to General O'Neill, that we are glad to see you here and glad to have this hearing. And we are glad to see that all of you are here in uniform without—apparently—wearing any gags or muzzles. [Laughter.]

In the years that I have known all of you, and particularly General O'Neill, I have never known any of you to pull a punch. You have given us advice straight from the shoulder, and that is all we expect and ask of you here today. Indeed, I want to say particularly to General O'Neill as you complete your tenure as the head of the Ballistic Missile Defense Organization, I think—and I have watched from the very beginning—that you have done an absolutely outstanding job, superior to all of your predecessors. And among other things you are to be commended for is moving the program forward and, in a sense, doing more with less. Now, I know you have stood on the shoulders of those who came before you. The technology base and experience and knowledge that was generated from the money that we spent on Strategic Defense Initiative [SDI] in the eighties is coming to fruit now in the systems that we are moving into engineering development and toward deployment. But you have brought to the program a focus which it sorely needed.

Part of the problem, part of the reason that we have not deployed anything, is that we have not had adequate funding to bring everything to deployment. But I think a bigger problem has been the lack of focus, a lack of focus that led us to at one time have five directed energy programs in research and development at the same time. We have scrapped a lot of that and gone to a very basic tech-based directed energy program and focused on the near term attainability of a ground-based system of interceptors, particularly in NMD, that can do it and also toward focusing our efforts in ballistic missile defense on the near term threat, which is in the theater, in the tactical setting rather than in the strategic setting. And I credit you for both directing the program in that way and also directing the logic and the rhetoric of it so that others could understand the need.

You have brought us a long way. You have brought us far enough that a lot of people are tantalized by the prospect that we can indeed do something now. And so one of the questions to you today is first of all as to the priority threat. The theater threat—where do we stand with that? There is no question, I think, among you on this panel today that the THAAD system and theater systems are the ones that we need to emphasize most. That is the threat we are most likely to confront. What are we doing with the THAAD? Have we indeed slipped it all the way to 2006? Or will

the User Operational Evaluation System [UOES] provide us something in the near term that will defend those theaters where it is critically needed, like Korea?

Second, as to Upper Tier, I was not an enthusiast for Upper Tier. Not because I do not think that it has a place in the family of ballistic missile defense systems, but because I think its place is behind THAAD in terms of priority. I think we should move first with THAAD and then second with Upper Tier. And I felt that if we started proliferating our efforts into many different systems, we were going to siphon money off of the front-line systems and slow everything down. So the question I have for you is, are we doing that? As we shift money from THAAD into Upper Tier, are we compromising and slowing down both? And what is your commitment, and what are your expectations for Upper Tier?

Finally, I think, General O'Neill and members of the panel, that you can expect that there will be more money forthcoming. You have heard from the two chairmen of the two subcommittees that have a say in this matter, and I do not think that there is any doubt that there will be more money for Theater Missile Defense [TMD] and National Missile Defense [NMD] this year, and you and the Department of Defense need to be thinking about where this money can be best invested.

We would like to find out today if we are indeed moving on a path toward deployability, where in 3 years' time with NMD we can indeed make a decision: We have articles we can test, we can determine the practical potential of the NMD system based upon these test results, and then decide in this Congress—as well as across the river in the Pentagon—whether or not we want to protect this country with the system that you have developed. By the same token, we want to know whether or not we can move forward with THAAD and Upper Tier and in the near term have something to deal with the most immediate threat.

We welcome your testimony today, and we appreciate the fact that you are here, and we know you will give it to us straight. Thank you very much.

Mr. WELDON. Mr. Skelton.

Mr. SKELTON. Thank you, Mr. Chairman.

I also would like to thank you for holding this hearing today. And Lieutenant General O'Neill, we welcome you to this subcommittee. I would like to, without repeating my friend John Spratt's remarks, associate myself with them. You have done yeoman's work and we appreciate it so very, very much, and also your candid advice that you have given in hearings, in briefings, and to me personally. I thank you so much for it.

I am particularly interested in the matter before us today because of the major budget ramifications associated with our effort to protect Americans from ballistic missile attack. And we welcome your advice and your counsel, General O'Neill, as well as that of the other gentlemen who are seated with you. Not only should we listen to your views or advice for the future; we should hear your assessment of both existing and emerging threats. We, of course, seem to all agree pretty well on the need for theater missile defense. The debate seems to be on the other—the national ballistic missile defense systems that have been proposed.

I have two concerns, however, Mr. Chairman. One is a concern with recent decisions of the Defense Department to alter the recommendations included in the 1996 authorization bill. That, of course, is a constitutional issue. Aside from that there seems to be a line of thinking, as reflected by the testimony of Secretary Perry, about the threats—the immediate threats or lack of immediate threats—requiring the need for a national ballistic missile defense system. Although that is in the pipeline, the most immediate is the theater missile defense, as we all know.

I am hoping that out of all of this, we can find a meeting of the minds, and rather than being at odds with each other and pushing and shoving and throwing snowballs at each other, we want to protect first the Americans in the field; second, we want to meet the threat should and when it comes to pass on protecting Americans here within our continental United States. But I think also, we have to take an overall look through this subcommittee on which I serve and the adjoining subcommittee as to where the scarce Defense dollars go. I, of course, offered a budget for larger numbers. Last year, the numbers actually came out pretty close to what I recommended. However, they were not spent exactly as I recommended within it. And I think that our major challenge is to take care of the young men and young women in uniform and the readiness that they have to meet immediate threats.

We never know when a Somalia comes along, when an Haiti comes along, whether an Multi Regional Conflict [MRC] comes along or a second MRC comes along, and I hope that in this entire effort, we can keep our eye on the big picture of readiness, taking care of the troops, because once you start bleeding, and they start going home, it takes a long time to grow a staff sergeant; it takes a long time to grow a major, a lieutenant commander and the like. So out of all of that, we have to make sure that we take care of the young soldier, sailor, airman, and marine and then look at what we can do in this area. The limited dollars cause a serious problem. I am hoping that out of all of this—these series of hearings, and I compliment you, Mr. Chairman, on the number that you are going to hold—there can be a meeting of the minds so we can stop the train collision and get ahead with the business of defending our country.

Mr. WELDON. Thank you, Mr. Skelton.

I would at this time like to ask our two leaders of the full committee if they would like to make opening comments.

Mr. Spence.

Mr. SPENCE. No, I do not.

Mr. WELDON. Mr. Dellums.

Mr. DELLUMS. Not at this time. Maybe later in the session, I will have something. Thank you.

Mr. WELDON. Absolutely; we appreciate you both being here. We know you have busy schedules, and we appreciate your being here, and we understand. Thank you very much.

Well, Mr. Skelton has opened the door for us with his statement: a meeting of the minds. We think we did that last year. We took your advice, General O'Neill, and everything that we did in our plus-up was consistent with what you said. It was not what we wanted to do; it was consistent with what you, the expert, said we

could do, and that is why our bill passed this committee with a 48 to 3 vote, and that is why in the 10 years I have been here, I have never seen 300 Members of Congress vote for a defense bill that had such a major, marked difference from what the President asked for in the area of missile defense. It was truly a meeting of the minds.

The easiest job I had in the Congress this year and in my 10 years in getting a support for something was during a 1-hour time period on the House floor to gather signatures of interested Members of Congress on defense issues to ask you to stay on. I could have gotten probably 200 or 300, but I only had an hour to work. In that 1 hour, I had 22 Members—12 Democrats and 10 Republicans. Everyone I asked—no one refused—jumped at the opportunity to sign that letter on your behalf. That is a tribute that I would say could not be given to every individual at the Pentagon right now, but it certainly can be given to you. We are very honored and pleased to have you here. We are going to miss you. We look forward to your testimony. Thank you. Your statement will be entered in the record, as will your colleagues', and we give you whatever time you may need.

STATEMENTS OF LT. GEN. MALCOLM O'NEILL, DIRECTOR, BALLISTIC MISSILE DEFENSE ORGANIZATION; REAR ADM. JOHN T. HOOD, PROGRAM EXECUTIVE OFFICER FOR THEATER AIR DEFENSE; BRIG. GEN. RICHARD A. BLACK, PROGRAM EXECUTIVE OFFICER FOR MISSILE DEFENSE; BRIG. GEN. RICHARD HAWLEY, DIRECTOR, GLOBAL POWER PROGRAMS, UNITED STATES AIR FORCE

General O'NEILL. Well, thank you very much, Mr. Chairman. First, I would like to introduce my colleagues and say first that the DOD's BMD Program is a joint program. It is a team. I happen to be the director of the Ballistic Missile Defense Organization, which is a small organization that is responsible for managing the program. In the Army, my point of contact is Brig. Gen. Dick Black, who is at my extreme left. He is my way into the U.S. Army for execution of about 50 percent of the program. Next to him, Rear Adm. Tim Hood is my point of contact in the U.S. Navy, and the U.S. Navy now is running about 20 percent of my program. On my right is Brig. Gen. (promotable) John Hawley from the U.S. Air Force. He is my point of contact into the Air Force, and we execute a smaller portion of the program with the Air Force, since some of the things that were in the BMDO are now in the Air Force. I mention the airborne laser and the space and missiles trading systems [SMTS] satellite, and I think John will have some opening remarks, because those are now outside of my direct control.

Sir, I would like to make an oral statement now. I have put in my written statement that I submitted for the record a couple of paragraphs on my gratitude to this committee for having achieved what I consider a significant consensus on the need for missile defense and the support of Congress for missile defense. I do not want to go over that in these comments.

As you are aware, the Department recently completed the BMD Program review. The program review was conducted by Dr. Paul Kaminski, my boss, who is the Under Secretary of Defense for Ac-

quisition and Technology. It established specific guidance for my program over the next several years. The most significant result of the review was a reaffirmation of our priorities for missile defense. The first priority is defense against theater-class ballistic missiles. The second priority is defense of the United States against long-range ballistic missiles. Finally, there is a technology-based program to support both TMD and NMD and look at advanced capabilities.

I believe the BMD Program that has resulted from the program review is executable, and I support fully the allocation of BMD resources within the confines of $2.8 billion budget. I recognize that while I am the advocate of the importance of BMD in the Pentagon, I cannot speak for the relative priority of BMD within other Defense programs. The total fiscal year 1997 budget request for my program is $2.798 billion. We are requesting $1.7 billion for theater missile defense RDT&E; $268 million for TMD procurement. The NMD Program is budgeted at $508 million and support technologies at $226 million. Of the total BMD budget request for fiscal year 1997, TMD accounts for roughly 74 percent of the program; NMD about 18 percent of the program; and technology 8 percent.

Our top priority, of course, as you can see from these numbers, is fielding—putting rubber on the ramp—a theater missile defense. The program continues to focus in three sequential efforts. First is deployment of systems that we have already upgraded and we are putting in the field today. We are putting rubber on the ramp today, and I harken you back to our hearing last year where I actually showed you the hardware that was going into the field in fiscal year 1995. We are now in 1996, and we are putting hardware into the field. One of the systems that we are putting in the field is an upgraded Patriot PAC–2 missile called the guidance-enhanced missile. This system has four times the defended area capability of the PAC–2 that you saw in Desert Storm, so it is a significant enhancement of capability going into the field today. The U.S. Marine Corps Hawk has been upgraded to allow the Marines to have a capability that they did not have until now, and that is a capability to defend against short-range ballistic missiles.

Just as importantly, and sometimes overlooked, we have deployed significant improvements to our ability to provide early warning information of ballistic missile launches to U.S. forces overseas. Last year, the U.S. Air Force activated the attack and launch early reporting to theater squadron—called ALERT—with a BMDO-developed talon shield system at Falcon Air Force Base, CO. The joint tactical ground system—called JTAGS—also developed by BMDO is a complementary tactical mobile DSP ground station for early warning use in the theater. The U.S. Army has deployed two prototype units, one to Germany and one to South Korea to support the war fighter. Five of these units will eventually be produced and fielded in 1996 and 1997.

The next phase of our sequence is putting rubber on the ramp in our core acquisition program. The Department's core programs today are three. They are the PAC–3 and the Navy area defense. They are our first priority to ensure we enhance our defensive capabilities against short- to medium-range ballistic missiles as quickly as possible. We will do this by building on existing infra-

structure and prior investments in ongoing programs; expanding the capabilities of Patriot and AEGIS standard missile systems; adding funds to deal with cost increases and development delays; exploring a concept for cooperative development with our allies for a medium extended air defense system and improving BMC-cubed.

In order to ensure that we field the lower-tier TMD systems as early as possible, the Department increased investment in both PAC–3 and Navy area defense as a result of the program review. The PAC–3 Program was increased by $345 million before inflation, and the Navy Area Defense Program by $186 million before inflation over the Future Years Defense Plan. These increases will allow us to begin PAC–3 deployments in 1999 and reach a UOES capability with Navy Area Defense in the year 2000. During the program review, THAAD was reduced in scope while maintaining focus on achieving UOES capability before the end of this decade.

From my standpoint, THAAD is still the flagship of the TMD Program. Prior to the program review, its funding profile was on the order of about $700 million per year. However, the review adjusted the program significantly, making out-year adjustments to our TMD efforts. The Department decided to keep the UOES portion of the program on track, which will allow obtaining an initial capability for UOES in fiscal year 1998. However, the program review restructured the rest of the THAAD effort, taking about $1.9 billion out of the $4.7 billion that was programmed through the FYDP. The initial deployment will be with what the Department calls a UOES-plus system, essentially a system that will be based on our first prototypes in lieu of a previously planned full capability objective system. This UOES-plus capability will meet the critical THAAD requirements. It will concentrate on militarizing a UOES prototype and upgrading certain components such as the infrared seeker and BMC-cubed. The resulting THAAD Program delays the production ramp-up and the FUE, the full-unit equipped—from 2 to 4 years. General Black and I can both comment later on our efforts to pull those timelines back as far as we can, but right now, it looks like a 2- to 4-year slip in the first unit equipped with THAAD.

With regard to Navy theater-wide, it became clear last year that the Congress was interested in a more aggressive development effort than the one offered by the Department. If you remember last year, we were going to have an effort where we put very little money into the Navy theater-wide, with a plan in 1998 to make a decision between Navy theater-wide and two other system options. We have decided based upon the input that we received from the Congress and the strong support of Navy theater-wide in Congress that we had to move Navy theater-wide to the head of the queue—not yet in the core but to the head of the queue. As a result, the program review directed execution of a combined effort to both define the optimal interceptor concept for Navy theater-wide and conduct a system technology demonstration. Admiral Hood can talk in more detail as we go on in the questions and answers about the content of that demonstration. In order to accomplish this program approach, the Department made a substantial increase to the funding profile for Navy theater-wide, adding about $600 million through the FYDP.

The medium extended air defense system will continue in development during fiscal year 1997. This system is a system which will provide lower-tier missile defense, cruise missile defense, and air-breathing threat defense for the combat force. Later this month, the United States, France, Germany, and Italy will sign a memo of understanding to jointly execute a program definition and validation phase of the MEADS system. The United States will be funding 50 percent; the allies will be funding 50 percent of the program.

We have a program element in our budget called joint TMD. It is a very important program element. It includes activities that have been grouped together because they directly support all of the service programs. These activities include architecture development; battle management; command, control, and communications; intelligence; tests and evaluation; development and fabrication of targets for testing; threat analysis; modeling and simulation. While this may not seem to be as exciting as building improved TMD interceptors, it is absolutely critical to the success of the U.S. TMD system. It is the glue that holds the joint aspects of my architecture together and ensures that the whole is greater than the sum of its parts.

I would like to say just one thing about cruise missile defense. BMDO continues to play an important role in the DOD's Cruise Missile Defense Program. In particular, our lower-tier PAC–3, Navy area defense and eventually MEADS systems operate as both cruise missile defenders and ballistic missile defenders. In addition, based upon instructions I have just received from Dr. Kaminski, he wants me to include cruise missile BMC-cubed considerations in my national missile defense BMC-cubed and feels that this may be a great mechanism to tie cruise missile considerations and ballistic missile considerations together. This, again, was Dr. Kaminski's initiative; I think it is an outstanding idea.

The Department's NMD goal is to position the United States to effectively respond to a strategic ballistic missile threat as it emerges. Based upon the program review, the NMD effort has been shifted from a technology readiness to a deployment readiness program. I will be happy to explain to the committee later what the differences are in a program that is focused on technology and one that is focused on deployment. They are significant.

The Department is sensitive to congressional interest in its shift to a more system-oriented approach which would provide for the balanced development of the elements necessary for initial deployment. We have focused our efforts on a program that I introduced to this committee last year called 3-plus-3, a 3-year development and planning phase which, if necessary, could be followed by a 3-year acquisition and deployment phase. The Department is committed to the development phase or the first 4 years of this 3-plus-3 program. During this period, BMDO and the services will develop and begin testing elements of an initial NMD system. If at the end of those 3 years of NMD development the ballistic missile threat to the United States warrants deployment of an NMD system, then in 3 years, that system could be deployed. Based upon this initial approach, an initial operational capability could be achieved in the same timeline that was mentioned in the draft authorization bill

that I saw, which talked to the year 2003. If the threat did not warrant deployment of an NMD system at the end of these first 3 years, our program would be designed to preserve the capability to deploy within about 3 years, continuing development of system elements and a significantly better capability as the threat demanded.

NMD capability would grow through three avenues: incorporating advanced technology; increasing element performance; and adding additional elements. One that I would like to highlight is the space and missile tracking system—called SMTS—which is part of the U.S. Air Force's space-based infrared system. This would be integrated into our proposed architecture for NMD and for TMD as soon as it was available to enhance performance. As I testified last year, SMTS provides a vital role for both NMD and TMD.

Funding for NMD has also been shifted in the FYDP, with an additional $100 million per year. The chairman mentioned the number now, around $500 million per year for both 1997 and 1998. This helps us move in the direction of a more robust first three of the 3-plus-3 and in the same direction that I think Congress wanted this program to move. This increase, coupled with the additional funds provided for NMD in fiscal year 1996, will allow us to complete a reasonable, albeit high-risk, development program leading to the demonstration of NMD systems in an integrated test in 1999. The test that will be conducted in 1999 includes a ground-based interceptor, ground-based radar, early warning sensors and BMC-cubed. These elements could be combined in a treaty-compliant deployment or some other architecture as required.

Deployment of an initial system would cost on the order of $5 billion. The intrinsic strength of our concept for initial deployment is that the architecture has been specifically designed for evolutionary development. It can grow to counter an increasingly sophisticated threat if required. As we move forward with our acquisition programs, the demands on our BMD resources have continued. I am concerned that this has forced us to reduce our technology program.

I would like to remind the committee that today's acquisition programs are possible only because significant past investments in BMD technology made them possible. I believe that proper development of technology maintains our programs' performance. I want to stress that nowhere else in the Department of Defense are the basic or component BMD technology programs funded. Therefore, to ensure the continued flow of new solutions to meet evolving ballistic missile defense requirements, I encourage the Congress to consider the BMD advanced technology program as an strategic investment.

In closing, Mr. Chairman, the BMD program today is a focused, prudent response to the real world. We are aggressively working to meet existing and emerging ballistic missile threats, first to our forces overseas as well as our friends and allies, and second, the emerging missile threat to the United States. I am dedicated to ensuring that as we field improved TMD systems as soon as possible to provide real protection for our forward-deployed forces, friends and allies, we have made strong progress in developing and acquiring these improved systems. We have made this progress because of the strong and enduring executive-legislative consensus on thea-

ter missile defense. This consensus has been directly responsible for ensuring consistent program direction and stable allocation of resources to get the job done.

Mr. Chairman, I strongly endorse staying the course with the Department's NMD strategy. The program acknowledges that some potentially adversarial nations are interested in developing longer range ballistic missiles which could strike the United States. The 3-plus-3 program could deploy a nationwide NMD system against first-generation Third World threats by the year 2003. Also, if the threat develops sooner, we do have options—and we can discuss those later also—which could deploy an emergency NMD system at an earlier date.

I think that it is critical that we work closely together on a bipartisan basis to form the consensus for NMD that the TMD program has long enjoyed. Such a course is required if we are to succeed in maintaining program stability and coherence.

On a more personal note, as many of you are aware, I have announced my intention to retire. Therefore, I would like to express my deep appreciation for the working relationship that I have enjoyed, a very positive and rewarding working relationship, with the members and the staff of this committee. In particular, I would like to express my appreciation for the hard work of Chris Williams, Doug Necessary, Nancy Lifset, and Hugh Brady on behalf of NMD. Of course, there is much more to be done, and we will need your help to make missile defense a reality. I hope the future director of BMDO has the opportunity to work closely with you, Mr. Chairman, Mr. Spratt, and all the members of this committee. That experience has been a great honor and privilege for me.

Sir, that concludes my opening statement. I look forward to answering the committee's questions.

[The prepared statement of General O'Neill follows:]

Statement of

Lieutenant General Malcolm R. O'Neill, USA

Director

Ballistic Missile Defense Organization

Before the

Committee on National Security

House of Representatives

March 7, 1996

Embargoed Until
Released by
Committee on National Security

Mr. Chairman and Members of the Committee, it is my privilege to appear before you today to present the Department's Ballistic Missile Defense (BMD) program and budget for Fiscal Year 1997.

As you are aware, the Department has recently completed the BMD Program Review, which was conducted by Dr. Paul Kaminski the Under Secretary of Defense for Acquisition and Technology. The Program Review established specific guidance for the BMD program over the next several years. The most significant result of the review was a reaffirmation of the Department's fundamental priorities for missile defense. The first priority remains defense against theater-class ballistic missiles, which represent a threat that is here and now. This next priority is to develop the capability to defend against longer-range ballistic missiles that could threaten the U.S. after the turn of the century. Finally, technology base programs to support both TMD and NMD round out the Department's BMD program.

Fiscal Year 1997 Program and Budget. The total Fiscal Year 1997 budget request for BMD is $2.798 billion. The Department is requesting $1.794 billion for Theater Missile Defense (TMD) RDT&E, and $268 million for TMD procurement efforts. The National Missile Defense (NMD) Deployment Readiness RDT&E program is budgeted for $508 million. Support Technologies budget request is for $226 million. Table A provides a detailed perspective on funding for Fiscal Years 1996 and 1997. Of the total BMD budget request for Fiscal Year 1997, TMD accounts for roughly 74 percent, NMD 18 percent and Technology 8 percent. This is presented on Table B.

As the Committee is aware, BMDO leads the Department of Defense team that executes the BMD program. My staff and I work closely and cooperatively with the Services as we seek to develop and acquire BMD systems. In this regard, BMDO interacts with the CINCs to ensure that as we develop BMD systems we respond to the specific needs of the warfighter. BMDO

BALLISTIC MISSILE DEFENSE ORGANIZATION

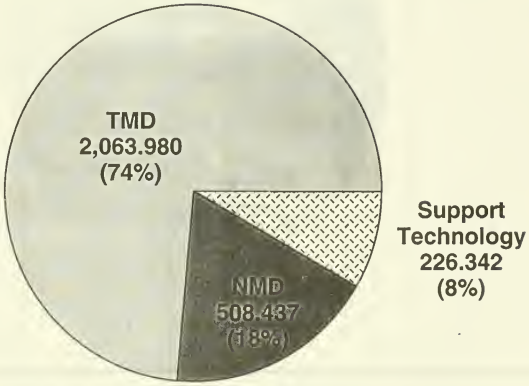
TY $ In Millions

Program Element	Program	Budget Activity	FY 95 Actual	FY 96 Estimate	FY 97 Estimate
Procurement					
• 0208861C	THAAD System Procurement	~	0.000	0.000	0.000
• 0208863C	HAWK Procurement	~	3.831	5.046	19.379
• 0208864C	TMD - BM/C^3 Procurement	~	0.000	31.996	19.256
• 0208865C	PAC-3 Procurement	~	251.106	288.892	220.255
• 0208867C	Navy Area Wide	~	14.496	16.380	9.160
	Procurement Total		269.433	342.314	268.050
RDT&E					
• 0602173C	Support Technology / Applied Research	02	80.948	89.230	94.023
• 0603173C	Support Technology - Advanced Tech Development	03	126.582	125.537	132.319
• 0603861C	THAAD System - Dem / Val	04	622.377	554.755	269.000
• 0603863C	HAWK - Dem / Val	04	26.800	22.312	0.000
• 0603864C	TMD - BM/C^3 - Dem / Val	04	19.893	23.160	0.000
• 0603867C	Navy Area Wide - Dem / Val	04	139.834	187.258	60.000
• 0603868C	Navy Theater Wide - Dem / Val	04	75.000	194.565	58.171
• 0603869C	Corps SAM - Dem / Val	04	14.223	19.675	56.232
• 0603870C	BPI - Dem / Val	04	40.610	0.000	0.000
• 0603871C	National Missile Defense - Dem / Val	04	387.105	720.750	508.437
• 0603872C	Joint Theater Missile Defense - Dem / Val	04	408.447	421.185	520.111
• 0604861C	THAAD System - EMD	05	0.000	0.000	212.798
• 0604864C	TMD - BM/C^3 - EMD	05	0.000	13.885	0.000
• 0604865C	PAC-3 - EMD	05	275.450	359.008	376.632
• 0604866C	PAC-3 Risk - EMD	05	69.328	18.967	0.000
• 0604867C	Navy Area Wide - EMD	05	0.000	95.732	241.582
• 0605218C	Management	06	157.435	146.530	0.000
	RDT&E Total		2,444.032	2,992.549	2,529.305
MILCON					
• 0603871C	National Missile Defense	~	0.323	0.832	0.000
• 0603872C	Joint Theater Missile Defense	~	0.000	2.577	1.404
• 0604861C	THAAD System	~	0.000	13.600	0.000
	MILCON Total		0.323	17.009	1.404
	BMDO Total		2,713.788	3,351.872	2,798.759

mj-61102 / 030696

FY 97 BMDO FUNDING

(TY $ In Millions)



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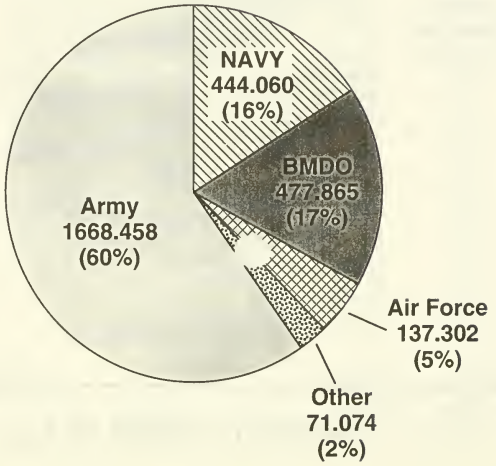
FY 97 BMDO FUNDING
BY EXECUTING AGENT

(TY $ In Millions)



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works closely with the Service Program Executive Officers (PEOs) to execute key BMD acquisition programs and put real capability into the hands of our military forces. Table C illustrates the important role the Military Services play in executing various segments of the BMD program. Using the total Fiscal Year 1997 dollars allocated to the Services and BMDO for BMD programs, you can see that the Army executes roughly 60 percent of the BMD programs, while BMDO executes 17 percent, the Navy 16 percent, the Air Force 5 percent, and other Defense entities 2 percent. The important lesson to draw from these percentages is that the BMD program is a. joint program that requires well-coordinated management and execution. We strongly benefit from the Services' technical and programmatic expertise. Meanwhile, BMDO ensures that BMD programs are advocated during budget debates; prevents duplication of BMD program efforts across the Services; sponsors joint development of BMD systems; ensures focus on joint warfighter needs; and concentrates on near-term acquisition programs while judiciously investing in far term technologies. Of special significance, BMDO is responsible for designing the appropriate battle management, command, control and communications that will ensure BMD systems are fully integrated. I am pleased to report that this approach to BMD program management has succeeded in combining the strengths of the Services and BMDO, which enable us to develop and acquire improved BMD systems and further develop critical military technologies.

Theater Missile Defense: Priority to Field Improved Defenses. The TMD program continues to focus on three sequential efforts to bring increasingly capable defenses to the warfighter. First, we have completed our near-term improvements to existing air and missile defense systems to allow them to defend against short-range tactical ballistic missiles. Prime examples of this activity are deployments of Patriot PAC-2 Guidance Enhanced Missiles (GEM) and U.S. Marine Corps HAWK Upgrades. Our tests have shown that a modified TPS-59 radar combined with the HAWK missile system is effective against short range ballistic missiles. Delivery of the upgraded systems to operational Marine Corps units will continue during this fiscal year. This program delivers a real military capability against the short range missile threat for a modest investment. Last year, we began producing the PAC-2 GEM system for the Army as the principal

improvement to our existing TMD capability until the PAC-3 system begins deployment in Fiscal Year 1999. The PAC-2 GEM improvements increase the PATRIOT's defended area and improves its lethality over its capabilities during Operation Desert Storm. The GEM's improved seeker performance allows the interceptor to more precisely locate the target missile. Meanwhile, a faster reacting warhead fuze contributes to a more optimal dispersal of warhead fragments on the target. Just as important, we have deployed significant improvements to our ability to provide early warning information of ballistic missile launches to U.S. forces overseas. Last year the Air Force activated the Attack and Launch Early Reporting to Theater (ALERT) squadron with the BMDO-developed TALON SHIELD system at Falcon Air Force Base, Colorado. The Joint Tactical Ground System (JTAGS), also developed by BMDO, is a complementary tactical mobile DSP ground station for use in the theater. The Army has deployed two prototypical units, one in Germany and one in South Korea, to support the warfighter. Five of these units will be produced and fielded in Fiscal Years 1996 and 1997.

Following these and other near-term improvements, the Department will continue efforts to develop and acquire a set of "core" TMD programs. The Department's Program Review established the TMD lower-tier systems -- the PAC-3 and Navy Area Defense programs -- as the first priority to ensure we enhance our defensive capabilities against short- to medium-range ballistic missiles as quickly as possible. We will do this by building on existing infrastructure and prior investments in ongoing programs, expanding the capabilities of the PATRIOT and AEGIS/Standard Missile systems; adding funds to deal with cost increases and development delays; exploring a concept for cooperative development with our Allies for a Medium Extended Air Defense System (MEADS); and improving our Battle Management, Command, Control and Communications (BMC3) capability.

Neither the PAC-3 nor the Navy Area Defense programs involve show-stopping technical challenges at this point. Rather, they involve engineering challenges. Nonetheless, the key issue is a matter of execution of the programs to complete the development and to field these two systems. Our task is to ensure that we have a robust program to proceed with both these systems

and to field this important capability as early as possible. Therefore, the Department increased the investment in PAC-3 and Navy Area Defense to ensure that they are adequately funded to guarantee timely delivery to the warfighter. The PAC-3 program was increased by $345 million and the Navy Area Defense program by $186 million over the Future Years Defense Plan (FYDP) through 1997-2001. These increases will allow us to begin both PAC-3 deployments and Navy Area Defense User Operational Evaluation System (UOES) deployments in Fiscal Year 1999. The mix of PAC-3 and Navy Area Defense interceptors eventually acquired to perform the lower-tier mission will depend upon their relative prices, performance and the status of the missile threat.

Patriot Advanced Capability - 3. The PAC-3 system will represent a significant upgrade to an existing air and missile defense system to specifically handle stressing theater-class ballistic missile threats. The PAC-3 system, using hit-to-kill interceptors, will be highly lethal against ballistic missiles including those with weapons of mass destruction. Improvements to the system will result in increased firepower and lethality; increased battlespace and range; enhanced battlefield awareness; and improved discrimination performance. These critical enhancements will be achieved by improvements to the missile, as well as the radar and communications systems. Operational improvements, such as remote launch operations, will also increase the battlespace and range of the PAC-3 system. These enhancements will mark a substantial improvement over our PATRIOT TMD capabilities during Operation Desert Storm.

The PAC-3 program is restructured to reduce program risk, adjust for schedule delays, and improve system performance by extending the engineering and manufacturing development (EMD) phase of the program by up to ten months; rephasing the missile and radar procurement; upgrading four launchers per battery with Enhanced Launcher Electronics Systems; and extending the battery's remote launch capability. The Program Review also visited the issue of the number of PAC-3 battalions to be fielded. The original plan was to deploy nine battalions. However, the review decided to field six battalions, while deferring fully upgrading the three additional battalions pending the completion of the MEADS program definition/validation phase. PAC-3 low rate initial production (LRIP) will begin the first quarter of Fiscal Year 1998, with the First

Unit Equipped (FUE) date planned for the fourth quarter of Fiscal Year 1999.

Navy Area Defense. As the Committee is aware, BMDO and the Navy have been working cooperatively to develop an enhancement to the AEGIS/Standard Missile air defense system to provide a tactical ballistic missile defense capability from the sea that is comparable to the defense provided by PAC-3. This represents a critical TMD capability that can take advantage of the strength and presence of our naval forces, and build upon the existing AEGIS/Standard Missile infrastructure. Naval vessels that are routinely deployed worldwide are currently in potential threat areas or can be rapidly redirected or repositioned. A Naval TMD capability can be in place within a region of conflict to provide TMD protection for land-based assets before hostilities erupt or before land-based defenses can be transported into the theater. Our Navy Area Defense program focuses on modifications to enable tactical ballistic missile detection, tracking and engagement with a modified Standard Missile 2, Block IV.

We will use the $45 million added by Congress in the Fiscal Year 1996 Defense Authorization and Appropriations Bills to compensate for system engineering and design efforts not fully funded in Fiscal Year 1995. The Program Review added $186 million to Navy Area Defense through the FYDP in order to make it fully executable on a moderate risk profile These funds will cover delays in risk reduction flights and adjusted cost estimates for test targets and lethality efforts In turn, this will minimize the delays in the EMD program and LRIP missile procurement.

Our plan is to field a UOES capability in Fiscal Year 1999 and an FUE in Fiscal Year 2001. Thereafter, operational units will use the legacy UOES system for continued testing and as a contingency warfighting capability.

Theater High Altitude Area Defense. THAAD is the more mature upper-tier system. During the Program Review, the THAAD program was adjusted to maintain track on an early deployment of a UOES capability before the end of the decade. Prior to the Program Review, its

funding profile was on the order of about $700 million per year. However, it adjusted the program significantly, making outyear adjustments to our investment in the program. The Department decided to keep the UOES portion of the program on track, which will entail fielding about 40 THAAD missiles and the GBR by Fiscal Year 1999. However, the Program Review restructured the rest of the program for the objective THAAD system, taking about $1.9 billion out of the $4.7 billion that was programmed through the FYDP.

The THAAD System is the only core TMD system capable of engaging the full spectrum of theater-class ballistic missile threats. The THAAD system provides extended coverage for a greater diversity and dispersion of forces or the capability to protect population centers. But the principal additional capability provided by this important system is the ability to deal with longer range theater missile threats as they begin to evolve and emerge over time. Using THAAD as an overlay also reduces the number of missiles that the lower-tier systems must engage. The THAAD system will provide a unique capability for wide area defense against tactical ballistic missiles at higher altitudes and more attempted intercepts at longer ranges (a "shoot-look-shoot" capability) with a lethal hit-to-kill interceptor. This is a mission the PAC-3 and Navy Area Defense systems cannot perform. The THAAD system consists of the TMD Ground-based Radar (GBR) surveillance and tracking sensor, interceptors, launchers, and BMC3.

The initial deployment will be with what the Department calls a "UOES plus" system, essentially an enhanced version of the UOES system, in lieu of the previously planned full-capability objective system. This improved UOES capability will meet the most critical THAAD requirements. It will concentrate on militarizing the UOES design and upgrading certain components, such as the infrared seeker, radar upgrades and BMC3 improvements. The resulting THAAD program delays the production ramp-up and the FUE by over two years.

In Fiscal Year 1997, the THAAD program will conclude its demonstration/validation flight tests. These tests are designed to resolve technical issues and demonstrate the system's capabilities. So far, BMDO and the Army have conducted four flight tests. The next flight test,

which will attempt an intercept of a theater-class ballistic missile target, is scheduled to take place within the next few days.

Navy Theater-Wide. The Navy Theater Wide system will bring a new, complementary capability to our other core programs by providing ascent phase coverage where the mobility of AEGIS ships allows such coverage. In addition, the system will add the same kind of terminal coverage capability as the THAAD system, providing long range coverage and wide area protection. As in the case with the lower-tier Navy Area Defense system, the Navy Theater Wide system will operate free of sovereignty or host nation support issues, free to be deployed instantly whenever our national interest requires.

The Navy Theater Wide system is the least mature of all our systems, not only of the upper-tier, but all the TMD systems taken together. Prior to the Department's review, we were proposing funding this program in our Fiscal Year 1996 and 1997 budgets at a very low level to mature the key enabling technologies. This was at a level of about $30 million per year. During the review, however, Congress authorized and appropriated a substantial increase -- $170 million -- to this program. The Program Review decided to spend all the appropriated funds for Fiscal Year 1996 over two years and not begin a full commitment to the Navy Theater Wide program at this time. A more deliberate pace was selected, which will allow us to proceed to a system-level intercept flight test using a combination of the AEGIS Weapon System, the Standard Missile and a kinetic kill intercept vehicle.

In parallel, the program is structured to conduct concept definition studies to determine what is the best configuration with which to proceed. There is much synergism among the technologies needed for a robust Navy Theater Wide system, including seeker technologies being developed in the National Missile Defense program. The Program Review determined that the posture for this program is to conduct a technology demonstration, leveraging maturing technologies and complete a concept definition study to confirm the interceptor configuration for the system. In order to accomplish this program approach, the Department made a substantial

increase to the funding profile. While starting out at a slow pace, we will add about $600 million through the FYDP to ramp up to a significant annual investment in Navy Theater Wide.

Medium Extended Air Defense System (MEADS). We will continue developing the MEADS system during Fiscal Year 1997. This system is different from the other lower-tier missile defense systems we are planning to deploy. For example, while the PAC-3 system is oriented in a particular threat direction, MEADS provides 360 degrees of coverage. It will be a highly mobile system and designed to be deployed with our forward and maneuvering forces. In this regard, MEADS is designed to respond to an important operational requirement by providing protection for the combat maneuver force against shorter-range theater-class ballistic missiles, advanced cruise missiles, and other air-breathing threats as well This system will replace HAWK, and also would ultimately replace the PATRIOT system. As I noted earlier, the Department is deferring fully upgrading three PATRIOT battalions pending a decision on development and deployment of MEADS.

Later this month, the U.S., France, Germany and Italy will sign a Memorandum of Understanding (MOU) to proceed jointly to develop the MEADS system. MEADS consolidates and harmonizes the efforts of NATO allies who had contemplated country-unique systems, such as the TLVS in Germany, Aster/Arabel in France and Italy, and Corps SAM for the U.S. The agreement to pursue MEADS represents not only a new path for transatlantic armaments cooperation, but also a growing recognition of the risks to alliance security posed by the proliferation of weapons of mass destruction and their delivery systems. The cost share for the MEADS program throughout the Program Definition and Validation (PDV) phase (the U.S. equivalent of demonstration/validation) is 50/20/20/10 among the U.S., France, Germany, and Italy, respectively. The Department added $85 million over the FYDP to fund the U.S. share of the cooperative PDV phase, which concludes in Fiscal Year 1999. This increase brings our funding to a rate of about $30 million per year and fulfills our international commitments at this time. We must make a decision by Fiscal Year 1998 on the program's future direction.

Two U.S. companies, Lockheed Martin and a joint venture between Hughes Aircraft and Raytheon, have joined with their European counterparts (Daimler-Benz Aerospace, and Siemans from Germany; Aerospatiale and Thompson from France; and Alenia from Italy) to form two international teams that will execute the PDV phase of the program. A single international team will be chosen to pursue Design and Development (EMD in the U.S.), with an in-service date scheduled for about 2005.

Joint TMD Program Element. Joint TMD activities represent programs and tasks that are vital to the execution of joint BMD programs. These activities have been grouped together because they provide direct support across BMD acquisition programs which could not be executed without this important support. Therefore, we introduce greater efficiency into the programs because they accomplish an effort once which otherwise would have to be separately accomplished for each Service element. These activities include architecture development and battle management, command, control, communications, and intelligence; test and evaluation support, including the development and fabrication of targets; threat analysis and support; model and simulation support; lethality and phenomenology studies and analysis; and direct interface with the warfighter. Unfortunately, we did not adequately explain the importance of this key program element last year and sustained a significant and painful reduction to its budget. This significantly reduced our ability to support the core TMD acquisition programs. In some instances, critical target development and lethality analysis had to be funded by the core programs themselves. These unexpected expenditures contributed to some of the executability issues identified by the BMD Program Review.

Therefore, I would like to outline just a few critical activities that are funded in the Joint TMD account. Interoperability in BMC3I is essential for joint TMD operations. Accordingly, BMDO takes an aggressive lead to establish an architecture that all the Services can build upon and is actively pursuing three thrusts to ensure an effective and joint BMC3I for TMD. The three thrusts are: improving early warning and dissemination, ensuring communications interoperability, and upgrading command and control centers for TMD functions. The primary

goal is to provide the warfighter with an integrated TMD capability by building-in the interoperability and flexibility to satisfy a wide range of threats and scenarios. From its joint perspective, BMDO oversees the various independent weapon systems developments and provides guidance, standards, equipment and system integration and analysis to integrate the multitude of sensors, interceptors, and tactical command centers into a joint theater-wide TMD architecture. While this may not seem to be as exciting as building improved TMD interceptors, it is absolutely critical to the success of the U.S. TMD system. It is the glue that holds the architecture together and will ensure that the whole is greater than the sum of its parts.

In addition to BMC3I, the other activities in this program element strongly support the TMD system and key acquisition programs. For example, BMDO test and evaluation responsibilities include oversight of major defense acquisition program (MDAP) testing, sponsoring and conducting TMD family of systems integration and interoperability tests, development of common targets, and providing for range and ground tests. My organization sponsors and conducts system integration tests to ensure inter- and intra-Service operability and interoperability of the TMD family of systems with external systems. In addition, this program element funds a critical series of interactions with the warfighting CINCs. The CINC's TMD Assessment program consists of operational exercises, wargames, and Warfare Analysis Laboratory Exercises (WALEX). Our WALEX programs, for instance, allow senior military leadership insights into TMD operational planning and employment. The CINC TMD Assessments program enhances two-way communication between BMDO as the developer and the warfighting CINCs who are the users of TMD systems. These exercises allow the CINCs to assess their TMD capabilities and shortfalls so they may refine and articulate their TMD requirements, and improve their current and future TMD operational capabilities. The program facilitates the development and refinement of TMD doctrine and concepts of operations as part of the CINC's and Joint Staff's overall theater operations plans. We need to fully fund this important program element if we are to deliver on our promise of improved TMD systems to the warfighter.

U.S. - Israel Arrow Program. Israel has been involved in U.S. missile defense programs

since 1987, when both countries signed a Memorandum of Understanding on BMD participation. Israel's participation includes architecture studies, technology development and experiments, examination of boost-phase intercept concepts, and the development of the Arrow interceptor missile. As the Secretary of Defense has noted recently, the Arrow program advances our shared objective of working together to develop effective ways to counter the threat posed by ballistic missiles in the Middle East and elsewhere. An agreement with the Israeli Ministry of Defense to continue involvement in the development of the Arrow weapon system will be ready for signature between both our countries in the near future. The Arrow Deployability Program, as it is called, involves a total commitment of $500 million over the next five years, with $300 million contributed by Israel and $200 million from the United States. This will allow for the integration of the jointly developed Arrow interceptor with the Israeli developed fire control radar, launch control center and battle management center. I am particularly pleased to report that on February 20th, the Arrow II missile completed its second successful flight test, which will lead soon to the intercept of a target tactical ballistic missile.

System integration efforts will lead to a UOES-like Arrow system projected for fielding in Fiscal Year 1998. The U.S. continues to derive valuable data and experience through our participation in the Arrow program. In particular, we are gaining important experience in establishing interoperability with U.S. TMD systems and the Arrow weapon system. The agreement we have on participation in the Arrow program will be revisited in three years to evaluate the synergies between Arrow and U.S. TMD programs and to ensure that worthwhile benefits continue to flow to the U.S. programs. It is important to note that this cooperative program is also funded within the Joint TMD program element.

Cruise Missile Defense. Many TMD sensors, BMC3, and weapons also have an effective capability to counter the growing land-attack cruise missile threat. In particular, the lower-tier PAC-3, Navy Area Defense, and MEADS systems operate in the same battlespace and will have significant capability against the cruise missile threat. In addition, the NMD BMC3 architecture will be designed to promote interoperability and evolution to a common BMC3 system for

ballistic and cruise missile defense.

The Department also has a number of initiatives outside the BMD program to improve the ability of U.S. forces to detect and defeat cruise missiles "in theater" or launched against the United States. These initiatives include advanced technology sensors to detect low observable cruise missiles; upgrades to existing airborne platforms to improve beyond the horizon detection capability against cruise missiles; and upgrades to existing missile interceptor systems.

National Missile Defense. The Department's NMD goal is to position the U.S. to effectively respond to a strategic ballistic missile threat, as it emerges. Based upon the Program Review, the NMD effort has been shifted from a technology readiness to a deployment readiness program. Following the 1993 Bottom Up Review, the NMD program focused on maturing the most challenging technical elements - often called the "long poles" - of the NMD system. The Department is sensitive to Congressional interest in a shift to a more system-oriented approach which would provide for the balanced development of all elements necessary for the initial deployment. We are focusing our efforts on a program that is referred to as "3 plus 3" -- a three year development and planning phase which, if necessary, could be followed by a three year system acquisition and deployment phase.

The Department is committed to the development phase -- or the first "three" years -- of this 3 plus 3 program. During this period BMDO and the Services will develop and begin testing the elements of an initial NMD system. If, at the end of those three years of NMD development efforts, the ballistic missile threat to the United States warrants the deployment of an NMD system, then in another three years that system could be deployed. Based on this program an initial operational capability could be achieved in approximately six years, by the year 2003.

If, on the other hand, we reach 1999 and the threat does not warrant deployment of an NMD system, the Department's 3 plus 3 program is designed to preserve the capability to deploy an NMD system within three years by continuing development of the system elements and

conducting a series of integrated tests. Over time, these efforts would allow us to enhance both the technology base and the demonstrated systems performance. Therefore, we can make a more informed deployment decision and, when the threat materializes, be in a position to deploy a more capable NMD system. The system capability would grow through three avenues: incorporating advanced technology, increasing element performance and adding additional elements. We would continue to improve system effectiveness by incorporating advanced technologies as they mature in our technology base program. As we continue to test we will identify and incorporate improved components to the system elements, such as improving the kill vehicle, enhancing its lethality, or refining the system software. When appropriate, we will add additional elements to the defense. For example, the Space & Missile Tracking System (SMTS), which is being developed separately by the U.S. Air Force, would be integrated into our proposed architecture as soon as it was available to enhance overall NMD performance. As I testified last year, the SMTS system provides a vital role for both NMD and TMD systems. The low earth orbit SMTS is an integral part of a potential deployment of an objective NMD system. While we are enhancing the NMD system's capability we will address production and deployment lead-time issues to reduce the time required to field the system when a deployment decision is made.

Funding for NMD has been shifted forward in the FYDP with allocations of about an additional $100 million per year in Fiscal Years 1997 and 1998. This increase, coupled with the additional funds provided by Congress for NMD in Fiscal Year 1996, will allow us to complete a reasonable, albeit high-risk, development program leading to the demonstration of the NMD system in an Integrated System Test in 1999.

The NMD system we will demonstrate in 1999 includes four fundamental building blocks used by all of the proposed NMD architectures: the interceptor; ground-based radar; upgraded early warning sensors; and battle management, command, control and communications (BM/C3). Depending on the threat to which we are responding when a deployment is required, these elements could be combined in a treaty compliant deployment or some other architecture.

The Ground Based Interceptor is the weapon element of NMD. It consists of an exoatmospheric kill vehicle (EKV) launched by a fixed, land-based booster. We have made significant progress over the past few years to develop an EKV which can perform hit-to-kill intercepts of strategic reentry vehicles in the midcourse phase of their trajectory. Rockwell and Hughes are under contract to develop and test competing EKV designs which will be evaluated in a series of flights starting later this year. Following intercept flights in 1998, a single contractor will be selected for the initial system. The EKV flights, which start this year, will be conducted using the Payload Launch Vehicle as a surrogate for a dedicated booster. Several options are being examined for the GBI booster, including Minuteman III, and other modified, off-the-shelf, boosters.

The NMD Ground-based radar is an X-band, phased array radar that leverages heavily off developments achieved by the THAAD GBR program. By taking advantage of the work already completed in the TMD arena, BMDO has been able to reduce the expected development cost of the GBR by approximately $70 million. In 1998 the GBR prototype, developed by Raytheon, will be fabricated at the U.S. Kwajalein Atoll to begin testing to resolve critical issues related to discrimination, target object map, kill assessment, and electromechanical scan.

The Upgraded Early Warning Radar (UEWR) program is designed to answer fundamental questions concerning how UEWRs can contribute to National Missile Defense while completing the initial development. We have already completed two years of successful demonstrations, showing how software modifications can increase the radars' detection range, sensitivity, and accuracy. Our plan is to award a contract in early 1997 for the design and test of a software demonstrator. This tool will be used to prepare specifications for the early warning radars' upgrades necessary if there is a decision to deploy an NMD system before SMTS is available.

The National Missile Defense Battle Management, Command, Control, and Communications (BMC3) program provides the capability for the designated operational Commander to plan, coordinate, direct, and control NMD weapons and sensors. The NMD

BMC3 development program uses an open system architecture and the best industry practices for development of software that will have the capability to support NMD integrated ground and flight tests. The BMC3 product, which will include cruise missile defense consideration, leverages off previous NMD developments and the BMC3 systems being developed for the TMD program.

Over the FYDP, the Department has budgeted those funds required for a deployment readiness effort, or roughly $2.8 billion. Deployment of an initial system would cost approximately $5 billion more. Our analysis shows that such a deployment would provide an effective defense against first generation rogue ballistic missile threats to the U.S. The intrinsic strength of our concept for an initial deployment is that the architecture has been specifically designed for evolutionary development of a more robust and effective NMD system over time; it can grow to counter an increasingly sophisticated threat, if required.

As I mentioned earlier, one of the significant enhancements to the NMD system will occur when the SMTS becomes available. This system, funded and developed as part of the Space-based Infrared System (SBIRS) program, provides 360 degree over the horizon sensing throughout the threat trajectory which greatly increases the system performance against all of the potential threats.

The NMD development program we are planning will continue to comply with all treaty obligations. As the 3 plus 3 NMD program progresses, we will study many different technologies and architectures. We will review these options from every perspective including cost, operational effectiveness, and existing treaty obligations.

Potential Early Deployment Options. The 3 plus 3 concept I have described for NMD has its genesis in last year's efforts by the BMDO Tiger Team, which investigated how we could accelerate the development and deployment of an NMD system to respond to more rapidly emerging threats to the United States. The Tiger Team, estimating time scales of approximately four years to deployment, described several opportunities and the associated challenges to deploy

an interim NMD capability to deal with rudimentary Third World threats to U.S. territory. In this regard, the BMDO Tiger Team was an important and valuable endeavor. Nonetheless, it is important to note that the opportunities they described are "off ramps" from efforts to develop and deploy an objective and highly capable NMD system, and if not carefully evaluated, could become technological "cul de sacs." Simply put, near-term options might not field an initial system that could be evolved to a more effective defense. The tradeoff we must consider is between earlier deployment of a less capable system, or later deployments of increasingly effective defenses for the U.S. homeland. Our 3 plus 3 approach is designed to provide an early deployment opportunity which can evolve robustly with the threat and operational needs.

As I mentioned earlier, and as a by-product of the Tiger Team exercise, both the Air Force and Army provided their recommendations on how to develop and deploy an NMD system. The Air Force and Army, in particular, have proposed alternatives which are very similar to, and with immediate commitment to deployment could allow earlier maturation than, the Department's 3 plus 3 program. In either case, a minimum of approximately four years to a capability was estimated. Consideration of such alternatives to the 3 plus 3 program has strengthened the commitment to deployment readiness within the Department. When it literally could come down to the effective defense of the nation against an accidental, unauthorized or limited ballistic missile attack, it is critical for us to fully assess all the options before us. The Army, Navy and Air Force remain critical members of our team and are vigorously and efficiently developing those portions of our 3 plus 3 architecture to which they are assigned.

The Army and Air Force proposals are very similar to BMDO's plans in that they use the same fundamental building blocks: ground-based interceptors, ground-based radars, upgraded early warning radars, and BM/C3. The differences come in the specific design of these elements and the way they are eventually combined architecturally. The Air Force's proposal is based on the belief that significant benefits can be achieved by leveraging off the deployed Minuteman III infrastructure. They propose using the Minuteman III booster to launch the kill vehicle, which could be either the EKV already described or a somewhat simpler kill vehicle which could be

developed by the Air Force. The Minuteman III concept would allow the use of existing launch silos and some of the existing BM/C3 network, potentially reducing the total cost. To provide the necessary sensor data, the Air Force proposes to augment the coverage provided by Upgraded Early Warning Radars.

The Army suggests a commercial booster developed by combining existing "off-the-shelf" booster stages to launch the EKV. These interceptors would be deployed in the existing silos of the old Safeguard complex near Grand Forks, North Dakota. In order to enhance radar coverage, the Army proposes also to augment early warning radars and recommends using technology from the GBR.

Each of these architectures has merit, but they also have potential shortcomings. Early deployment options are capable of defending against only the most simple ballistic missile threats -- that is a few warheads atop first generation ICBMs. BMDO and CINCSPACE are engaged in the assessment of the existing and future threats, as defined in the National Intelligence Estimate and the NMD Threat Assessment Report. The joint endeavor with CINCSPACE includes an aggressive effort to specify the operational requirements, including effectiveness and coverage, and evaluate them against architectural options and system level developmental requirements. Two major efforts for this evaluation include active Command and Control simulations, which combine architectural options, specific threats, and concepts of operations in a simulated real-world environment; and a cooperative effort in the development of the Battle Management and Command, Control and Communications (BMC3) element. The NMD architecture will be specifically tailored to meet the current and emerging threats.

In addition to such operational concerns, alternative architectures still need to be reviewed from the perspective of our treaty obligations. For instance, the proposals call for the use of additional early warning radars. One alternative also would use existing Minuteman III assets (including silos) as the boosters for the NMD kill vehicles. This raises both ABM and START Treaty issues.

I think it is important for the Congress to be aware of these and other potential architectures, including both operational concepts and arms control impacts when considering these alternative architectures. While I acknowledge that there are potential limitations, I still believe there is strong merit to considering them.

If we identify an emerging ballistic missile threat to the U.S., I would like to have the best possible deployment options available to the President and Congress. I want to reiterate, when we address the defense of the American People against even a rudimentary Third World ballistic missile threat, I want to make sure we have every feasible opportunity to effectively defeat that threat as soon as possible.

I strongly endorse staying the course with the Department's current NMD strategy, while continuing to protect our earlier deployment options. I think it is the prudent course of action. Following three more years of system development, we will reach the point where a low risk decision could be made to deploy an NMD system, if the threat warrants. If not, we will be prepared to continue development of a system that could still be deployed quickly in response to a threat but would ensure a more effective defensive system. The 3 plus 3 program is designed with the flexibility to allow it to be accelerated if the threat warrants and additional resources are applied. As it is currently structured it provides the capability to deploy with an IOC in 2003, the date Congress desired. At this time the specific deployment architecture is not an issue which must be decided. What is needed is program stability. Completing definition of a system of this complexity in three years is a challenge - we cannot afford to keep starting over to develop something new. I urge you to accept our program and to provide sufficient resources to complete the deployment readiness phase of the 3 plus 3 program. Then, if it is necessary, we will be prepared to defend all of America against limited missile attacks by 2003.

BMD Technology Program. As we move forward with our acquisition programs, the programmatic demands on our BMD resources have continued and the number of Congressional earmarks has risen. I am concerned that because of this we have been forced to reduce our

technology program. I would like to remind the Committee that today's acquisition programs are possible only because significant past investments in BMD technology made them possible. For instance, development of the "hit-to-kill" interceptor technology, now adopted by PAC-3 and THAAD, evolved from the SDIO's Flexible Lightweight Agile Guidance Experiment (FLAGE) technology demonstration program in the mid-1980's. Technologies making the infrared sensors and data processors possible for the upcoming SMTS satellite system have been developed over the past decade through BMDO-sponsored research and development. That includes infrared detectors, cryogenic coolers, optical hardware and radiation-hardened microelectronics.

Just as these past technology investments helped enable current TMD acquisition programs, today's technology investments will prepare us for evolving, proliferating threats. Evolving threats, based on reasonable extrapolations of credible countermeasures, set the pace and direction of today's advanced technology program. As a result, next generation TMD and NMD systems will be able to draw from a set of readily available technology solutions.

We have organized the technology program to balance across several variables, including TMD and NMD applications, and technology development and demonstrations. In this regard, we have identified the most critical technology requirements for the program and are pursuing them within the constraints of the funding available for the technology program. These unique technology requirements include:

- o sensor and seeker component programs to improve the range and resolution of missile defense sensor systems and interceptor seekers;
- o interceptor component programs to develop faster, smarter, more capable interceptors;
- o BMC3 high-data and low-error advanced component technologies needed in automated decision aids, data fusion, adaptive defense operations, and secure communications;
- o phenomenological research to determine how the threat, environment and

defensive systems will behave and interact during an engagement; and

- research into advanced concepts, such as directed energy systems, that are capable of global coverage (i.e., accomplishing both national and multiple-theater missile defense missions), and that can engage targets in the boost-phase.

I believe that proper development of technologies to meet these critical requirements is essential to maintaining our program's technological edge. Nowhere else in the Department are the basic or component BMD technology programs funded. Therefore, to ensure the continued flow of new solutions to meet evolving ballistic missile defense requirements and technology needs, I encourage the Congress to consider the BMD advanced technology program as a strategic investment. I will make sure the technology program maintains a clear focus and that its products remain relevant to the BMD mission and are of high quality. I believe this investment is critical to the continued success and viability of our BMD program.

Conclusion. The BMD program today is a focused, prudent response to the real world. We are aggressively working to meet existing and emerging ballistic missile threats, first to our forces overseas, as well as our friends and allies; and secondly, the emerging missile threat to the United States.

I am dedicated to ensuring that we field improved TMD systems as soon as possible to provide real protection for our men and women as they go into battle to defend our national security interests. I believe we have made strong progress in developing and acquiring these improved systems. I am particularly proud that the lower-tier TMD systems will very soon be in the hands of the warfighter. We have made this progress because of the strong and enduring Executive-Legislative consensus on Theater Missile Defenses. This consensus is directly responsible for ensuring consistent program direction and the stable allocation of resources to get the job done. This support must continue if we are to deliver on our collective promise to give the warfighter the protection he needs in a world with proliferating missile threats.

As I have testified today, the Department has structured a deployment readiness program for NMD that is prudent and flexible. That program acknowledges that some potentially adversarial nations are interested in developing longer range ballistic missiles which could strike the United States. The 3 plus 3 program could deploy an effective nationwide NMD system against a first generation Third World threat by the year 2003. However, if that threat develops sooner, we have options which could deploy an emergency NMD system at an earlier date Given the uncertainty of the ballistic missile threat to the U.S., it is prudent for the Department to proceed with the 3 plus 3 program. However, I think it is critical that we work closely together on a bipartisan basis to form the consensus for NMD that the TMD program has long enjoyed. Such a course is required if we are to succeed in maintaining program stability and coherence. The success of NMD depends on our ability to reach this consensus.

On a more personal note, as many of you are aware, I have announced my intention to retire. Therefore, I would like to express my deep appreciation for the wonderful working relationship I have enjoyed with the Members and staff of this Committee. Dr. Perry forwarded to me several weeks ago one of the most personally heartwarming and inspiring letters I have ever read. It was a request, signed by you, Mr. Chairman and you, Mr. Spratt, as well as some twenty other Members of Congress, many of them here today, asking Dr. Perry to retain me as the Director of BMDO. I will never forget your expression of confidence in my honesty and integrity. I am personally and professionally appreciative of this support. Nonetheless, for two reasons I persisted in my plans to retire this year. First, for the first time in 33 years, my family has asked that I slow down just a bit Lastly, I truly feel that this is a propitious time for the program to make a leadership change. Between you, Mr. Chairman, and you, Mr. Spratt, there is now as much detailed understanding of the missile defense program on this side of the river as there is on the other. The Administration is committed to missile defense, with the only major disagreement with Congress in terms of how much and how soon, rather than missile defense, yes or no. Of course, there is much more to be done and we will need your help to make missile defense a reality. I hope the future Director of BMDO has the opportunity to work closely with you, Mr Chairman, Mr. Spratt and all the Member of this Committee. That experience has been a great

honor and privilege for me.

Thank you, Mr. Chairman. I look forward to continuing to work with the Committee, as well as the entire Congress, to make highly effective and affordable missile defenses a reality. Mr. Chairman that completes my statement. I look forward to addressing the Committee's questions.

Mr. WELDON. Thank you, general.

General Hawley.

General HAWLEY. Mr. Chairman, thank you for this opportunity to speak to two of the Air Force's very important programs for ballistic missile defense. As General O'Neill mentioned in his remarks, the space and missile tracking system [SMTS] is an integral part of the space-based infrared—or SBIRS—system. The Air Force believes that SMTS will make major contributions to SBIRS' four mission areas of missile warning, missile defense, technical intelligence, and battle space characterization. The program consists of a proof of concept flight demonstration system, which is two satellites, and a later operational constellation of at least 24 satellites.

The flight demonstration system is very important to mitigate development risks. However, it faces significant challenges, as it pushes our state of the art in long-life, low-orbit satellite design and command and control of complex distributed satellites. We are confident, however, that our assembled team of Government and contractor professionals will provide the experience base to overcome these many challenges.

Currently, the flight demonstration system is planned for launch in fiscal year 1999. Full-scale deployment, in accordance with the current program, is planned to begin in fiscal year 2006. The Air Force, in coordination with the other services and DOD agencies, is currently preparing an acceleration plan in response to congressional direction in the fiscal year 1996 defense authorization bill. The plan under development calls for the first operational space and trading systems [SMTS] launch in fiscal year 2002 with an IOC being achieved in fiscal year 2003. In the near term, the fiscal year 1996 additional funds provided by the Congress will be used to launch the flight demonstration system as soon as possible so as to learn as much as possible before making final commitments to our operational SMTS design.

Additionally, we have identified our development risks and are working our program to minimize them. Alternative sensor designs and development paths to the current flight demonstration system are part of this integrated acquisition strategy. We plan to have full and open competition for the engineering and management development phase of the operational SMTS system. Your continued support during the next few years is critical to our being able to achieve these many important goals.

The Air Force has also fully funded the airborne laser demonstrated program through the FYDP and is requesting $56.8 million in fiscal year 1997 for airborne laser [ABL]. Recent breakthroughs in laser technology now indicate that our most promising options for boost-phase intercept is the airborne laser. Live-fire lethality tests conducted over the past year indicate that the ABL will be able to accomplish speed-of-light catastrophic kills of theater missiles in the boost phase, when they are most vulnerable. Our concept calls for the ABL platform to be an air-refuelable, wide-body aircraft that can deploy worldwide and close in the theater rapidly with other early-arriving air assets. Once it is in theater, it will quickly establish on-orbit combat air patrols to provide protection for the arrival of other U.S. and coalition forces.

The ABL will have an onboard, 360-degree passive infrared sensor. The system will be capable of autonomous detection, acquisition, and tracking of theater ballistic missiles with no external cueing required, although it will be fully equipped to exploit external cueing when available. In addition, the ABL will incorporate a high-energy chemical laser in the multimegawatt class. It will carry sufficient laser fuel for 30 to 40 engagements per 12- to 18-hour mission. The airborne laser will engage TBM's above the clouds out to hundreds of kilometers as it stands off from enemy territory. An onboard system will, through the telescope, determine final target track, dwell the laser, and determine if there are other targets to intercept. We anticipate the ABL will be able to engage at least three nearly simultaneously-launched theater ballistic missiles before booster burnout.

The Air Force plans to field a demonstrator system by the year 2002 that will immediately offer a significant capability in case of a contingency. Additionally, the Air Force is conducting studies on ABL adjunct missions, to include such things as cruise missile defense; protection of high-value assets; defensive counter-air; BMC^4I; suppression of enemy air defenses; and surveillance.

Thank you very much.

Mr. WELDON. Thank you, General.

Admiral Black, do you have a statement to make—or Admiral Hood; I am sorry.

Admiral HOOD. No, Mr. Chairman; I have no statement.

Mr. WELDON. General Black, do you have a statement you would like to make?

General BLACK. No.

Mr. WELDON. Sorry for the mixup there.

General BLACK. That is OK; we are good friends. [Laughter.]

Mr. WELDON. We thank you all for your testimony, and we appreciate it, and we have a number of questions. I will just ask a couple to get the session going today.

General O'Neill.

General O'NEILL. Yes, sir.

Mr. WELDON. As you know, many of us in this country, including myself, feel as though the threat today is not so much from an all-out Russian attack but perhaps more the threat of a rogue nation or an isolated launch or a threat of a launch of one missile, evidenced partly by the active efforts by the Russians right now to market a modification of the SS–25 as a space launch platform to any nation that will purchase it. Obviously, it would not have a nuclear tip on it, but it could have a conventional or a biological or chemical weapon on board. Many of us are concerned that the Taepo Dong II that North Korea is developing could, in the very near future, be capable of hitting Hawaii or Alaska. Many of us share similar concerns that the CSS–2 or the CSS–4 that China is developing would have a similar capability in the near term of hitting Alaska or Hawaii.

General O'Neill, do we have the technical capability today, using and building on existing technology, to deploy a limited national ABM system that can provide up to a 90-percent effective rate against up to 10 incoming missiles for approximately $5 billion or less that is ABM Treaty-compliant?

General O'NEILL. Sir, the short answer I think is yes, but I have to qualify that. No one sitting at this table today is an expert and can speak definitively as to whether something is treaty-compliant or not. That is held at higher levels than ours and independent of the developer of the system, and I think for good and sufficient reasons. But we have looked at the challenge. We have not yet demonstrated those technologies, so there is some risk in my saying yes. But from the studies that I have seen done by my analysts; by the studies that have been done by the Army for me and by the Air Force for me, the short answer is yes.

Mr. WELDON. I would just ask my colleagues if they would like to have that briefing independently. We will have it at a committee meeting. Very important point: The answer is yes, that we can, in fact, deploy a treaty-compliant ABM system not for $10 or $20 billion dollars as we heard coming out of the White House but for approximately $5 billion or less in less than 5 years. The Air Force variant is approximately $3 billion; General O'Neill questions that number. The Army's proposal is approximately $5 billion. But the point is a very valid one that needs to be reemphasized over and over again, and our bill last year was very specific in not taking the ABM Treaty on head on. And so for Mr. Abercrombie's district in Hawaii; Mr. Young's district in Alaska, we have the technical capability; it is a question of whether or not we have the support within the Congress to move forward.

Second question: General O'Neill, you requested the upgrade to the NIE last year before our committee. You told us it was needed. We supported you repeatedly in both written and verbal communications to ask where that NIE was. We did it in May; we did it in July; we did it in August; we did it in September. We kept asking the intelligence community: where is the upgraded national intelligence estimate [NIE]? Each time I would talk to you, you would say well, we are still asking for it and waiting for it; we do not know where it is.

It was really to my dismay that before you were briefed or before I was briefed or anyone on this committee was briefed, the Deputy Director of the Central Intelligence Agency [CIA] sent a two-page letter to a senator basically outlining what is supposed to be the basic tenets of a classified document, the NIE, for use in floor debate in the Senate. Two weeks after that, I had the briefing myself. I sat through the entire briefing up until I got sick—not sick because of physical illness; sick because of what I felt was not the in-depth analysis and said so to the briefer at the time, Dave Osias. I know you have had that briefing since that point in time, as have others.

From your personal viewpoint, were you totally satisfied with the NIE?

General O'NEILL. No, sir.

Mr. WELDON. Have you conveyed those feelings to the appropriate officials in the Pentagon?

General O'NEILL. Yes, sir.

Mr. WELDON. I appreciate that.

Third question: I applaud you for your efforts at working with the Russians in terms of missile defense capability and technology. As you know, General O'Neill, in cooperation with you, one of the

hearings we were going to hold last December but postponed because of the Duma elections the following week was going to be with you and a Russian counterpart testifying to joint BMDO-Russian efforts in the area of missile defense capability. I want to applaud you for your efforts in the Russian American observation satellite [RAMOS] project, in the Skipper project. I want to applaud you for your work with the Utah Russian Institute. I want to applaud you for your efforts with Keith Payne in working with Dr. Kurtunov, an advisor to President Yeltsin, on missile defense initiatives, because in the end, I agree with you. We need to convince the Russians that we must work together in this area and that we are not about achieving specifically an advantage over them. Is that an emphasis area that you think should continue within BMDO's operation?

General O'NEILL. Yes, sir.

Mr. WELDON. Have you allocated or provided for any specific funding for that kind of effort in this fiscal year?

General O'NEILL. Yes, sir, I have.

Mr. WELDON. To what extent?

General O'NEILL. It is not a great amount of money, sir. It is down about $10 million, I would think off the top of my head. The problem at the moment is not on this end of the ocean. The problem is on the other end of the ocean. Both Dr. Anita Jones and Dr. Kaminski have sent personal correspondence to Russian to ask their peers to fully support this program, and we are not moving forward as swiftly as we should be.

Mr. WELDON. Last week, I met with Yuli Voronsov, the ambassador from Russia, in my office and talked specifically about the RAMOS project and explained to him it was vitally important for Russia to move forward if they were going to show a real commitment to work with us as opposed to empty rhetoric. Finally in my opening questions, General O'Neill, I would say to you as the chairman of this subcommittee that I am going to recommend that we plus-up funding in the missile defense accounts, and I would hope that our colleagues would agree with us in that area. But I do not want to plus it up where I think it is important, because I am not a technical expert, and I have no parochial interest in missile defense programs from the standpoint of my district or my state. Would you provide for us on the record where you think a plus-up should occur in this fiscal year budget so that it is consistent with where you think we should be going in terms of national missile defense, theater missile defense and cruise missile defense as well as Brilliant Eyes?

General O'NEILL. Sir, what I would like to do—my role and my mission is to support the Commander-in-Chief and the Secretary, and the program that I am defending here and speaking for is his program. What I would like to do is couch it in terms of to be responsive to the authorization bill, how could I get back on that track. Would that be a better way to approach it?

Mr. WELDON. I think that is consistent with what we want. What we are saying to you is we are not asking you what you would want to do; we are not asking for a budget number.

General O'NEILL. Yes, sir.

Mr. WELDON. That is our job as the policy makers.

General O'NEILL. Certainly.

Mr. WELDON. But we want to do it in a way that is consistent with what you, the technical expert, feel would be the best use of those dollars.

General O'NEILL. What I would like to do, sir, is provide you the answer to the question—take the authorization document; how can you get this program back on the path to what you interpret is wanted in this document.

Mr. WELDON. Thank you.

General O'NEILL. I would be happy to do that.

Mr. ABERCROMBIE. Mr. Chairman.

Mr. WELDON. Mr. Abercrombie.

Mr. ABERCROMBIE. Would you yield just briefly to me for a clarification?

Mr. WELDON. Yes.

Mr. ABERCROMBIE. Mr. Chairman, I did not fully comprehend or understand the question as posed nor the answer given by General O'Neill with respect to the satisfactory nature or lack of satisfactory nature of the intelligence briefing. Now, you may not want to pursue that here, but I hope you understand my point.

Mr. WELDON. I understand your point, Mr. Abercrombie, and I would suggest that every member avail themselves of the opportunity to sit through not a briefing or a 20-minute version but a full briefing as provided to me by Dave Osias. And he had 10 briefers there with him. I had Chris Williams from our staff; I had a staffer from the Intelligence Committee, and it lasted over an hour. I can tell you, Mr. Abercrombie, we will be holding a series of hearings this year both classified and unclassified that will get at the core and the heart of the Russian threat. It will get at the core and the heart of technology transfers. We are going to look at that transfer of advanced accelerometers and gyroscopes in detail, which this administration has yet to demarche the Russians on. We are going to look at the whole issue of the SS–25's. We are going to look at the issue of the breakdown of the Russian military, and we have an expert who is going to come in and talk about studies that have been done in cooperation with the Russians on the attitudes of their military leadership. We are going to look at this issue in depth. This will be available for the members. It is a question of how much time members want to put in. But it is not going to be that you have to make a decision based upon a lack of information, and you will have information that will be provided from people who work for this Government and people who work for our agencies.

Mr. BATEMAN. Mr. Chairman.

Ms. HARMAN. Mr. Chairman.

Mr. WELDON. Mr. Bateman.

Mr. BATEMAN. Mr. Chairman, I would make a suggestion that this information I think is of a great deal of importance to everybody on the committee. And in the economy of time and effort—the staff could arrange a briefing and advise all members of when and where it could be—we could probably reduce the number of times a parade of people have to come over here. Those who could not make that particular briefing could then make their own arrangements.

Mr. WELDON. That is an excellent suggestion. We will do that.

Ms. HARMAN. Mr. Chairman.

Mr. WELDON. Ms. Harman.

Ms. HARMAN. I applaud Mr. Bateman's cost-conscious suggestion, and I just wanted to indicate my strong interest in this but also my interest in whatever classified or other briefings we could have on threats not just from Russia but also from other sources, specifically cruise missile threats or other short-term threats. I was pleased to hear General O'Neill address cruise missiles, and I would certainly ask for a full briefing on any sorts of threats in the near and medium term.

Mr. WELDON. I thank the gentlelady, and we will do that. And when we bring in these other experts—some of whom, as I say, work for the Government in various capacities who have focused on specific areas of what is happening inside the Russian military—I will invite members of both parties to be in attendance at those meetings.

Mr. ABERCROMBIE. Mr. Chairman.

Mr. WELDON. They will not be held with one party alone.

Mr. Abercrombie.

Mr. ABERCROMBIE. Just very briefly again: maybe I did not myself explicitly clear—and I appreciate everything that has just been said, but my understanding of both the question and the response from General O'Neill is that I understood that the briefing was unsatisfactory, so even if we held such a briefing or a session such as you suggest, if it is going to be unsatisfactory, my real question was why was it unsatisfactory? Was it truncated or something of that nature? Now, if you cannot answer that in this particular session, that is fine with me. But General O'Neill, am I clear in what I am asking?

Mr. WELDON. The question I asked was in his personal opinion first of all, which there is a distinction there. And what I would rather do, Mr. Abercrombie, is deal with this in a closed session——

Mr. ABERCROMBIE. OK, that is fine.

Mr. WELDON [continuing]. Because we are talking about a classified document. And we will arrange for a session with both the intelligence briefers and for General O'Neill to have an opportunity to explain. And we have done a five-page inquiry to the intelligence community asking very specific questions about the NIE.

Mr. ABERCROMBIE. OK.

Mr. WELDON. I will be happy to provide that to you if you would like.

Mr. ABERCROMBIE. I would appreciate it. Thank you very much.

Mr. BATEMAN. Mr. Chairman, I think that we should let the other shoe drop to the extent that it can in an open session. I mean, General O'Neill has said that he disagrees, that he is not completely satisfied, I believe he said, with the national intelligence estimate. Let him tell us in open session exactly where he disagrees.

Mr. WELDON. Well, I think that is up to General O'Neill to determine. If he feels comfortable in discussing it in open session, I would invite him. If he feels more comfortable doing it in a closed

session, then I would accede to General O'Neill, since he is gracious enough to be here today.

Yes, General O'Neill.

General O'NEILL. Mr. Chairman, I would be happy to answer the question about my concern. I think the NIE is an excellent document. My biggest concern—and my concerns were all technical with regard to the document. The one that I can talk about in open session is the fact that I was very concerned with earlier intelligence predictions where there were not uncertainties. I am a scientist. I cannot even measure the length of this table without some uncertainty. This table is 3 meters long plus or minus 3 or 4 inches. And what I did not like about the NIE was the certainty with which they can predict something. I think there have to be bounds, error bars. And what I wanted, and what I asked for in January of 1995 was an assessment of uncertainties. And I will leave it to the people who hear the briefing as to whether that issue is treated to your satisfaction. I can tell you as a physicist, it is not.

Mr. WELDON. Thank you.

Mr. Spratt.

Mr. SPRATT. Thank you, Mr. Chairman.

General O'Neill, let us go back to national missile defense [NMD]——

General O'NEILL. Yes, sir.

Mr. SPRATT [continuing]. And talk about the $5 billion. And if you could, spell out what $5 billion would buy. How many interceptors, Exatmospheric Kill Vehicles [EKV's]? How many ground-based radars? To what extent would you be able to test the system adequately, rigorously, with $5 billion allocated, and to what extent would you be able to bring BMC-cubed to completion with that amount of money?

General O'NEILL. Yes, sir, we would be talking about a single-site system at Grand Forks, ND. We would have to upgrade the Air Force's early warning system. We would have to be able to look with the early warning system at the rogue that we are concerned about, whether that rogue is in the Middle East or that rogue is northeast Asia. We would have to make sure we had assets to look in that direction of an early warning nature. At the site, we would have around 20 interceptors.

Mr. SPRATT. So it would not be 100 interceptors for $5 billion.

General O'NEILL. No, and that would be a problem with a threat of 10. That gets a little bit high for 20. So I would have to say it might be more than $5 billion if we had to go up. And I think for about 10 threats, you would probably want about 40 interceptors, and that could take a little bit longer. That might take another 6 months to a year to obtain.

Mr. SPRATT. If we went to the treaty limit of 100 interceptors as the treaty currently reads, what would that add to the overall cost?

General O'NEILL. If we went up to 100 interceptors, let me just pick——

General BLACK. Half a billion.

General O'NEILL [continuing]. Half a billion? Let us say $1 billion, just to be a little bit conservative about it.

General BLACK. Yes.

General O'NEILL. Another $1 billion.

Mr. SPRATT. But this includes a ground-based radar [GBR] Kwajelein and a GBR at Grand Forks?

General O'NEILL. This includes the GBR at Grand Forks and a GBR test prototype at Kwajelein, and that is where you do your testing. We would include in that, I think, sufficient tests, probably two to three tests per year during the later phases, preceded by some technology intercepts that are presently budgeted. We have budgeted for two intercepts in fiscal year 1998.

Mr. SPRATT. In truth, would not you rather see more rigorous testing than two or three tests?

General O'NEILL. Yes, sir, I certainly would.

General BLACK. It is a total of 10 tests, sir.

General O'NEILL. A total of 10 tests? You are predicting 10 tests? It would be 10 tests to get to the full operational system, at least in the analysis that General Black has done.

Mr. SPRATT. So if we are talking about a rigorous ALPS or whatever acronym you want to use for this——

General O'NEILL. Yes, sir, accidental launch protection system [ALPS].

Mr. SPRATT [continuing]. Not a full-up national continental defense, but something that is good against rogue and accidental losses, you would want to go to 100 EKV's, and that would cost you another $1 billion. You would probably want to test several times 10, not just 10, to have some confidence in the system and also to be able to make some perfections to what you have got there. And you are probably talking $7 to $8 billion rather than $5 billion for that kind of system.

General O'NEILL. For that kind of a system, yes, sir.

Mr. SPRATT. Now, in the 3-plus-3 plan, how much do we spend on NMD all up over that 6-year timeframe?

General O'NEILL. We spend on the average $400 million a year, so that would be $2.4 billion.

Mr. SPRATT. So that is about half what you need for the $5 billion system and about a third of what you need for the——

General O'NEILL. Yes, sir.

Mr. SPRATT [continuing]. Full-up system.

General O'NEILL. Yes, sir.

Mr. SPRATT. Now, does the money spent in the first 3 years take us to the point where, in 3 years, we can indeed decide we want to go forward?

General O'NEILL. Yes, sir.

Mr. SPRATT. And we will have enough test results to tell us whether or not this has a practical potential to be an effective interceptor?

General O'NEILL. Yes, sir.

Mr. SPRATT. Now, if you wanted to plus that up, then where would you put the money? What is being underfunded in the $2.4 billion? Is it the EKV? Is it the GBR? Where does the money come up short?

General O'NEILL. To give you an example, we are building the EKV's for one flyby experiment per contractor—we want to have a flyoff—one flyby seeker experiment and then one intercept test. As you all probably remember, it took us four homing overlay experi-

ment tests before we succeeded with homing overlay. That was back in 1984. I think we have come a long way since. But you need a little bit healthier test program than to have one shot per contractor, and I would prefer to have more, but it is resource-constrained right now.

Mr. SPRATT. And that would put us in a position 3 years from now if you had more to make the decision?

General O'NEILL. Sure; we could fly more tests and in the same timeframe. If we had more money in 1997 or more money in 1998, we could fly more tests in the same timeframe.

Mr. SPRATT. Mr. Chairman, I think the light is on. If I could ask a couple of questions about THAAD——

Mr. WELDON. We are going to have more than one round, too.

Mr. SPRATT. Let me just quickly ask you a couple of questions about THAAD, because you touched on this, but I think it bears more explanation. Why is it that we have stretched out THAAD, and exactly what do we plan to do with respect to the UOES? Are you going to put systems in the field, say Korea, which would be usable, deployable systems that would address the immediate threat there, or are these simply going to be held stateside and dispatched when and if needed?

General O'NEILL. Sir, the concept of UOES is a concept that we began in the SDI Program, and what it was was a concept for allowing the operator to evaluate prototypical hardware so that we could get feedback before we went to the final design and production of a system. It is not meant to be deployed. The UOES hardware is meant to be used up in testing. It is the kind of equipment you would give to a test squadron or a test battery, and they would go out into the desert, and they would shake it, rattle it, roll it, and see whether it was good before we went into mass production of this stuff. I think it is a very reasonable concept.

We came up with the concept of UOES because the Congress told us in the Missile Defense Act of 1991 that they wanted a significant increase in theater ballistic missile defense capability by the mid-nineties. We had a THAAD Program that was going to mature in 2002 at that time, and what we promised you was we would have something available, prototypical hardware, in the mid-nineties that we could deploy in a contingency. Well, we are now talking about the 1998 timeframe. I hope you still consider that the mid-nineties. But that is the equipment that we plan to use up in Research and development [R&D], but which a Commander in Chief [CINC] in Korea, General Luck, could call forward in a contingency. But he would have to call it forward; we have no intention to deploy UOES hardware.

Mr. SPRATT. Well, now, if we keep it on a faster track toward deployment, do we run the risk of deploying a system without having fully shaken down all of these problems and optimized the design of it?

General O'NEILL. Not at all, sir. With the objective THAAD system, the thing we call UOES-plus, we will be through all of those elements of the acquisition. What we are talking about in a UOES system is a prototype. There might be contractors in lab coats on the site with the Army personnel in THAAD in some cases.

Mr. SPRATT. But if you were on the faster track that you were on last year——

General O'NEILL. Yes, sir.

Mr. SPRATT [continuing]. Were you foregoing some of this field testing and user shakeout?

General O'NEILL. Oh, not at all, no; the UOES program was more robust than the program we are talking about.

Mr. SPRATT. So you would simply have a more robust UOES if you had more money?

General O'NEILL. We would have a more robust UOES.

Mr. SPRATT. And you would get the shakedown done a little sooner——

General O'NEILL. And we would get the shakedown done a little bit sooner.

Mr. SPRATT [continuing]. And therefore, you would get the full system in the field a little bit earlier.

General O'NEILL. Yes, sir.

Mr. SPRATT. OK.

General O'NEILL. And if we had more money in THAAD, we would have a stronger engineering development phase, because one of the things we would do is we would buy a $120 million radar that we have decided not to buy. And what it means is that General Black, during engineering development, will have one radar out on the range to do testing instead of two radars. So if that radar goes down, then everything stops for 1 week until the radar comes back up.

Mr. SPRATT. Thank you very much, Mr. Chairman.

General O'NEILL. But we have done that as part of the reduction in funding for THAAD.

Mr. SPRATT. Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Spratt.

And just for the interest of the members, the hearing that we were scheduled to have last Thursday would have had General O'Neill, General Garner from the Army, and General Linhard from the Air Force in here so that you could have asked those questions about their NMD capabilities first hand. You could have asked about the technical aspects, the dollar aspects. They would have been here at the table to answer those questions. That hearing was not about program issues for this year. They were ready to appear; we had their testimony. They were denied the ability to come before this subcommittee. They will be back with General O'Neill sometime before the end of March or early April.

The distinguished chairman of the Acquisition Committee, Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman.

Let me start off from the bottom line with respect to the American people. And I just want to ask you this question because I have decided to ask it at the beginning of every hearing because of what I perceive as a total misunderstanding by the American people as to what we can do, so I would ask you, General O'Neill, do we have any capability to shoot down incoming ballistic missiles coming into the United States?

General O'NEILL. No, sir.

Mr. HUNTER. And General Hawley, speaking for the Air Force?

General HAWLEY. No, sir.
Mr. HUNTER. The Navy?
Admiral HOOD. No, sir.
Mr. HUNTER. And I take it——
General BLACK. No, sir.
Mr. HUNTER [continuing]. Brigadier General Black, you do not have a different answer.
General BLACK. No, sir.
Mr. HUNTER. No capability.
Now, let us go to the system that we are going to be fielding very shortly and are fielding now. According to your testimony, General O'Neill; that is, the PAC–2, which is basically an improved Desert Storm system. What can that shoot down?
General O'NEILL. Sir, the PAC–2 GEM can shoot down the threats up to the capability of the threat that we had in Desert Storm, which was the al-Hussein, which is about a 600-kilometer system.
Mr. HUNTER. This is a Scud-type system?
General O'NEILL. A Scud-type system.
Mr. HUNTER. So if you are going to rate the ballistic missile threats, the Scud is basically a Model T, is it not? It is a pretty slow ballistic missile.
General O'NEILL. Yes, sir.
Mr. HUNTER. The North Koreans are building what we call the Taepo Dong II missile. It has received some publicity, some visibility. That is a missile that we now think may have a 3,500-kilometer range, up to 3,500 at least. I want you to respond to that. One of the estimates that has been given in the past is 3,500. What do we think that will be able to do, now?
General O'NEILL. Sir, we consider the Taepo Dong II a strategic ballistic missile with a range that could go up to 6,000 kilometers.
Mr. HUNTER. Can that reach, then, when it is fielded, parts of the United States?
General O'NEILL. Yes, sir.
Mr. HUNTER. What parts?
General O'NEILL. Alaska and the westernmost regions of Hawaii.
Mr. HUNTER. OK, what are we looking at for IOC——
Mr. ABERCROMBIE. Mr. Hunter, excuse me.
Mr. HUNTER. Certainly, since your State was mentioned, go ahead.
Mr. ABERCROMBIE. Just briefly.
Mr. HUNTER. I yield.
Mr. ABERCROMBIE. General O'Neill, again in the interests of following up on what Mr. Hunter is saying, when you say the westernmost reaches of Hawaii, Hawaii extends over hundreds and hundreds and hundreds of miles. That is also something that people do not necessarily understand.
General O'NEILL. Yes, sir.
Mr. ABERCROMBIE. So when you say the westernmost regions, do you mean the westernmost region of Schofield Barracks, or are you talking about islands considerably to the west of that?
General O'NEILL. About 1,000 kilometers to the west of Schofield Barracks.
Mr. ABERCROMBIE. So we are not talking about——

General O'NEILL. No, sir; populated areas.

Mr. ABERCROMBIE [continuing]. Pearl Harbor or Schofield or——

General O'NEILL. We are not talking about Pearl Harbor.

Mr. ABERCROMBIE [continuing]. Kaneohe, right?

General O'NEILL. That is right.

Mr. ABERCROMBIE. Thank you. That, maybe, is not a measure of comfort to gooney birds, but it is a bit different than might what otherwise be surmised by someone not familiar with it, correct? [Laughter.]

General O'NEILL. Yes, sir.

Mr. ABERCROMBIE. Thank you.

Thank you, Mr. Duncan. Mr. Hunter.

Mr. HUNTER. That is OK, Mr. Neal. [Laughter.]

Incidentally, what was the upgrade in that? Because, originally, our first estimates of Taepo Dong II were that it would do about 3,500 kilometers; now, we are up to about 6,000. I think that says something to our ability to analyze what the bad guys—if you will—are doing with missiles. We change these estimates fairly markedly. Our intelligence gatherers move their estimates up on a regular basis, and I see there some of your concern about saying you are a little frustrated with intelligence estimates that say the table is exactly 9-feet long when there may be a margin of error there. But go ahead, General.

General O'NEILL. Well, sir; I was just going to say that the intelligence people were very clear to me from the get-go, and they claimed ranges from 4,000 to 6,000 kilometers, and they gave me that certain range. I was never told Taepo Dong II is 3,500. From the get-go, they told me 4,000 to 6,000 is our estimate, 6,000 max. And that is good for many of our concerned people.

Mr. HUNTER. And what is their IOC? What are we looking at in terms of the time when that is going to be fielded, if you can say that in this session?

General O'NEILL. I do not know whether I can say that in an open hearing, sir.

Mr. HUNTER. OK, do we have any of the theater systems that we are developing now that are under consideration in our budget that have the capability of intercepting or shooting down the Taepo Dong II?

General O'NEILL. Not in a credible manner, no, sir.

Mr. HUNTER. Do any of the other witnesses have any other information that would conflict with that?

General O'NEILL. Well, let me say that if we did have an airborne laser. But the airborne laser would have to be within range of the boosting phase of the Taepo Dong II, and I would think the North Koreans could see the aircraft on radar, and they would not launch until the aircraft had gotten out of range.

Mr. HUNTER. So we have established that we have no capability of shooting down incoming ballistic missiles coming into the United States. The system that is being developed by the North Koreans, who heretofore have not been a member of the strategic missile club, have a missile that is above the capability of the theater systems that we are going to develop at some time in the start of the next century, and we have established that. Now, I have a comparison of dates here. The first unit equipped—the IOC for when we

will have our first unit out—that is the initial operating capability; that is when we first get the capability of fielding the missile; but the first unit equipped is when you get the units actually in the field with a weapons system that will accomplish its mission. Now, I have in one column starting with PAC–3, which is one of our theater missile systems, fiscal year 1999, and I have the law as passed by Congress and signed by the President for first unit equipped fiscal year 1998. With the THAAD system, I have fiscal year 2006 for the date that the President has told us we will have this system, whereas the law said we wanted to have it in the year 2000. So it is going to come in first unit equipped 6 years later. With respect to those two particular systems, would it be fair to say, then, that the Clinton administration has slowed down the deployment of those systems from what Congress and the President agreed to last year?

General O'NEILL. Sir, I think the short answer would be no, the administration has not slowed down both of those systems. I would like Dick Black to go into the details.

Mr. HUNTER. OK.

General O'NEILL. But, basically, they stayed as close as they could to the Congressional desire for fiscal year 1998 for Patriot—in fact, added $345 million to try to do that—and that was based upon the JROC, the administration insisting that we stay as close to these dates that we have agreed with Congress to do as we possibly can. In the case of THAAD, I think it was a resource issue. And you have made comments about the resource problems in the DOD, and as a result of the resource issue, these dates were allowed to slip. And I will now get General Black——

Mr. WELDON. Will you yield?

General O'NEILL [continuing]. Comment about the specific reasons why——

Mr. HUNTER. But first, I want to establish—and Mr. Chairman, if you will indulge me to just finish this question.

Mr. WELDON. Sure.

Mr. HUNTER. In one column, I have got the first unit equipped. The congressional direction was fiscal year 2000.

General O'NEILL. Sure.

Mr. HUNTER. And that, we established last year. And I have here now the results of the administration's lowering of the funding in that program fiscal year 2006. That is 6 years later.

General O'NEILL. That is true.

Mr. HUNTER. Now, is that slowing down the first unit equipped date?

General O'NEILL. Yes, sir; it is. I thought the question was for PAC–3 and for THAAD were both slowed down.

Mr. HUNTER. OK, so you are saying PAC–3 is going to be——

General O'NEILL. The PAC–3 slowdown is a fact of life slowdown not attributable to a decision made by the administration.

Mr. HUNTER. The THAAD slowdown is a function of lower funding.

General O'NEILL. Yes, sir; that is it. And I would like if General Black could comment.

Mr. HUNTER. Certainly.

General BLACK. I agree with the clarification that General O'Neill made. The PAC–3 is a fact of life change, and it has, as you have indicated, gone from 1998 to 1999. The THAAD change is, in fact, a result of the reduction in funding. We are doing everything we can to try to restructure that program and try to bring that back from 2006, try to get it back to 2004. But we are severely constrained in what we are able to do because of funding.

Mr. WELDON. Will the gentleman yield?

Mr. HUNTER. Sure.

Mr. WELDON. Let me boil this down very simply: This Congress and this President agreed on a law that was passed and signed at the beginning of this year, the defense authorization bill. And in that law, there are various target dates established in the text of the law. The question is, can the budget that has been requested for missile defense allow you to meet the requirements in the missile defense specific categorical areas as set by the law? That is the question.

General O'NEILL. The answer is no, sir.

Mr. WELDON. Thank you.

Mr. Chairman, do you have any——

Mr. BATEMAN. Would the gentleman yield on that?

It would seem to this member at least that in light of that response, it would be extremely helpful to have General O'Neill and his associates furnish us with the figures that would be needed to advance the program if you were going to do it in the concept that the No. 1 priority was to do it as soon as possible and still have confidence in the system you were deploying and, if you do not put the total priority on the most immediate date, a schedule as to what increments of money would produce what savings in time to deployment.

General O'NEILL. Yes, sir.

Mr. HUNTER. Yes, Mr. Chairman; just one last question, and thank you for your indulgence.

I am interesting in compressing the schedule—you may have gotten my drift—on both NMD and TMD because I think the threat is going to be there before the defense is there. If we accelerated testing programs—Mr. Spratt mentioned this—could we substantially accelerate our TMD programs, our TMD IOC's and our NMD IOC's?

General O'NEILL. Sir, I think in the case of PAC–3 and Navy Area, we probably could not compress too much. I think in the area of THAAD, we certainly could. We could recover most of the ground that we have lost. Now, let me just say that we in our approach last year suggested that at the funding level we saw in the President's budget that 2002 was the appropriate date for the FUE of THAAD. Congress said 2000, but that would involve some schedule risk. We had a program that was funded at $4.7 billion at that time and would give us 2002 with low to moderate risk. I think if we tried to go 2 years earlier than what we thought we were going to do last year, we would probably have significant difficulty. I do not think General Black would be able to——

General BLACK. I concur with that. We, based on the fact of life changes for the THAAD Program, realistically could come to a 2002 first unit equipped, and we were prepared to do that with the

budget profile that we discussed here last year. However, with the drawdown in the budget that has been done in this year's budget submit, we are way out there to 2006.

General O'NEILL. But let me add—and this light has just come on, and I think Dick would agree—because the technical scope of THAAD is less, if we endorse this idea of a UOES-plus, we might be able to get to 2000 with a UOES-plus system as opposed to an objective system. You know, we are doing this in real time.

General BLACK. We would really need to look at the restructuring of the program to see what we could accomplish by 2000, but I would be skeptical to commit to that at this point.

Mr. WELDON. Thank you.

Mr. BATEMAN. I will have more questions later.

Mr. WELDON. We will have a second round.

General, we are going to have to take a recess for a vote on the final passage of the debt limit; we will return. This should be a brief recess.

[Recess.]

Mr. WELDON. The subcommittee will reconvene. At this point in time, I yield to our distinguished ranking member of the Acquisition Subcommittee, Mr. Skelton.

Mr. SKELTON. Thank you very much, Mr. Chairman. Again, I compliment you on this hearing.

Now, General O'Neill, I am a small-town country lawyer, and all of this PAC–3 and MAD and THAAD and all of that stuff is a little confusing. I am concerned about taking care of the troops. I am concerned about the theater missile defense systems that we had, that we have, and that we will have in the foreseeable future. During Desert Storm back in 1991—of course, that is now some 5 years ago—we had some near-tragedies, and we had some tragedies as a result of the Scud missile, and I suppose some would compare that to a Model A or Model T theater ballistic missile, and I am sure that potential enemies have upgraded their theater missiles. Where were we, where are we, and where are we going to be? That is my bottom line question insofar as protecting the troops on the ground in the theater, please.

General O'NEILL. Yes, sir; well, where we were was that the only protection that they had against the Scud was the PAC–2. The PAC–2 had to be moved into the theater, and it is a mobile system, but it is a heavy system. It takes a lot of airlift to get it in. And if you get it in by sea, it will take days to get it in, so what we had to do then was we had to get it into the theater as soon as possible, and we were fortunate that we had several months to assemble our PAC–2 brigade before Desert Storm actually occurred. If you remember, Desert Shield was the first phase, the buildup phase, and PAC–2 came in then. But PAC–2 had a limited range, a range on the order of a little more than 10 kilometers, so it was not capable of defending large ports, large depots, large airfields, and certainly, it was not capable of protecting population centers.

What we have today is we have the Guidance Enhanced Missiles [GEM] system. The GEM system is a significant improvement over PAC–2. It is called the PAC–2 Guidance-Enhanced Missile, and what it is is a much more sensitive seeker in the front of the missile that allows it to see further and see better to fly closer to the

target before the warhead explodes. That gives us four times the area of defense that you would have for the troops. It gives us a much more capable system without expending significant numbers of rounds. One of the things we did, as you recall, in Desert Storm was we would salvo maybe as many as three rounds at one target to have the best probability of safety. You can be more economical with the GEM because it is a better system.

The Marine Corps has no Patriot, and because the Marine Corps wants to carry into combat what it needs to defend the marines asked us and we agreed to help them upgrade the Hawk. So we now have going into the field about 1,000 rounds of improved Hawk, larger warhead, better sensitivity, and an improvement to a Marine Corps radar called the TPS–59 that will allow that radar to get advanced warning so that the Hawk can engage the ballistic missile. And that will give the marines a few kilometers of protection, probably 5 kilometers or so protection as they hit the beach and until they can break out or until the Army can provide coverage from the Patriot. But we also can get the word.

It is very important: One of the aspects of missile defense we oftentimes forget is passive defense. Just the ability to know that the threat is on the way can allow you to take protective measures. You can get your helmet on; you can get your Mission Oriented Protection Postal Gear [MOP] gear on if you are worried about a chemical threat; you can get into a hole, at least. The Joint Tactical Ground System—called JTAGS—that the Army is deploying and the Air Force's ALERT system give the same digital I think it is about half the time—is that about right, John?—about half the time that it took in Desert Storm to get the word out. And this word does not go out by a person over a telephone; you know, the line could be broken. This goes out digitally to all of the headquarters, and it can be digitally retransmitted to all of the troops and all of the battalions and tell them there is something on the way, and if you cannot protect yourself, at least take cover. That is a very important thing that we are putting into the field right now. That is what we have.

Now, what we will have and why we are so convinced that this is the way to go is we will have instead of the kinds of things that Dick in the Army and Tim in the Navy and John in the Air Force are doing in things like counterforce, we will be providing an upper-tier and lower-tier capability which gives you wide area protection so that you can reach out several hundred kilometers to attack this incoming ballistic missile before it gets near you. You can destroy it before it hits the coast if it is coming across a body of water by using the kinds of systems we have. So we will have a high-altitude defense, and underlayering that will be the Patriot PAC–3, which will go into the field, and the Navy Lower Tier, which will go into the field and provide an underlayer.

What we will also be doing, what we will have is a much more mobile and a much more on the scene missile defense capability. As you probably know, if we have not prepared for a contingency, the Navy may be the only ones close enough to get to the action with a major force in any reasonable amount of time. So you might just have a few ships over the horizon, and what those ships could do is they could provide the kind of support that we needed to

bring Patriot into Korea to provide about 2 years ago, when there was a concern about missiles coming down from North Korea. In the future, the Navy would be able to provide that without requiring the Air Force to lift the Army into that theater. The Army could always come in when the CINC decided to bring them in, but he would have the flexibility to have early presence through the Navy, and he would have the augmentation that would come by the Navy after the Army got into position to fight the TMD battle.

So you see an evolution of capability to a much more comfortable arena in which we could talk about protecting as well as our forces our friends and allies.

Mr. WELDON. We will have a second round.

Mr. Dellums.

Mr. DELLUMS. Thank you very much, Mr. Chairman.

I think you would agree with me that what is important as we go forward in the discussion, the debate and ultimately structuring some policy to address these issues is that we all talk off of the same page and we have appropriate definitions. And so my questions are designed to clarify definitions. There have been a number of comments from a number of quarters saying we have no missile defense. I would like to raise this question with respect to the definition of defense with General O'Neill.

Is it not true that missile defense has three components: a deterrent component; a prevention component; and finally, an effort to design some appropriate mechanism to defeat at the strategic and at the tactical level. And I would assert—and you can respond to suggest that I am correct or incorrect or that you agree or disagree—that when people say we have no defense that they are ignoring 30 or 40 years of history, because we do indeed have deterrents. There are five strategic nations: the United States, France, England, China and Russia. France and England are our friends; they are our allies, so I do not assume any attack from them. If you then assume the strategic capability of China and Russia that deterrence has worked in that regard, deterrence meaning that if someone attacks, we can respond, inflicting such unacceptable damage that they probably could not emerge as a civilized society in modern times.

So deterrence is part of the part of the definition of national missile defense. Prevention: Nunn Lugar is an incredibly important initiative that dismantles former Soviet state missiles, missiles that we spent hundreds of billions of dollars preparing ourselves to wage war with people; but we now can dismantle weapons with literally a handful of dollars in comparison to the billions that we were prepared to wage war with them. START I and START II, other arms control and nonproliferation strategies are in place as well.

Then, third, there is the effort to design some mechanism to defeat. As I understand your proposal, you are saying at the strategic level, deterrence works. The immediate threat that we are rapidly becoming confronted with is the tactical threat, which means our prioritizing is on theater missile defense, so we step out there and aggressively move in the area of theater missile defense. Where it is possible, then, for a nation to move from tactical capability to strategic capability, your assessment, based on the threat assess-

ment, is that that is out far enough that it allows you then to establish a 3-year robust program that at the end of 3 years allows you to put a system in place if indeed the threat warrants that, but if it does not, each year allows you to mature the level of your technology so that eventually, what you do put out there, you get what in Washington terms is called—maybe I should not say this but bang for your buck, that that is the basis upon which your whole program is established.

The first question, then, is: is your definition of missile defense a definition that moves beyond simply solely and singularly a strategy to defeat a missile but includes strategies of prevention and strategies of deterrence?

General O'NEILL. Yes, sir.

Mr. DELLUMS. You agree with that?

General O'NEILL. Certainly, that is our approach in the DOD, exactly.

Mr. DELLUMS. Now, the second definition is what is, from your perspective, effectiveness? You know, we often use this term. The chairman used the term of an effective system; the chairman of the Procurement Committee used the term effective; a number of people used the term effective. It seems to me we ought to all be moving from the same definition of what is indeed effective. From your perspective, what would you think is an effective system as you define it? And the B part of that question is: if we deployed a system at this moment, which some advocate, based on present technologies and present capabilities, would that produce a system effective enough to warrant the resources that we would place at appropriate disposal to get it done, or would we indeed be putting a placebo out there that would be even further falsifying the situation for people, making them feel good, but it does not work? In other words, is 20 percent effective, meaning you could take one out of five missiles out? Is 30 percent effective? Is it 50 percent? What is your definition of effective, (A), and (B), if we put a system out there right now, would that meet your definition of effective, or what would you think it would accomplish?

General O'NEILL. Yes, sir; well, in the first place, the definition of effectiveness is basically that characteristic which is a measure of the success of your defensive system. The measure of that effectiveness can be in various terms. One term is probability of hitting the ballistic missile when it comes in; another one is probability of no negative impact on the protected asset, whether that is a city or an armored formation or a ship or whatever. Another effectiveness measure that we often use is how many weapons actually get through the defense, the percentage of weapons that get through the defense. And the systems that we design based upon our background in programs like air defense and things like that, we typically realize that we are not going to have perfection in the effectiveness of an engagement.

So there are things we can do. We can either engage several times: early in flight, in the middle of flight, and late in flight; or we can fire more than one interceptor and hopefully accumulate probabilities of effectiveness. If we, for example, shoot three Patriots at one target, it is more likely that we will shoot down the

plane than if we only shot one. The actual number comes from the war fighter.

Mr. DELLUMS. Maybe it is important if we clarify effectiveness. I guess you could talk about effectiveness at the theater level.

General O'NEILL. Or at the national level.

Mr. DELLUMS. Yes, at the national missile level.

General O'NEILL. For example, my war fighter for the national level is General Joseph Ashy, who is the CINC Space, and he is also the commander of NORAD. And he is the person whom I deal with on a daily basis, and he talks to me about probability of leakage, because he does not want any. And what he talks about as minimally acceptable are probabilities of 90-percent or above. I am not even on his page unless I am talking about a 90-percent probability or better of no leakage. And the system that we were talking about with the chairman was a system that would have to guarantee—and I think the chairman used the number—a 90-percent probability of no leakage for numbers up to 10 RVs. So I would have to guarantee to General Ashy that I am either going to engage enough times or fire enough interceptor missiles to accumulate that probability. And he has analysts on his staff who know this business inside and out, and they will tell General Ashy whether what we are building for the General will do the job, and he will not sign up to it unless we give him what he asks for.

Mr. DELLUMS. The B part of my question was if you deployed a system now—because the stress is to deploy a system ASAP, given technology presently in hand, out there, ABM Treaty-compliant. The argument is you can do it with one site, and you can defend the 48 cluster too. What would be the order of probability putting that system in space ASAP?

General O'NEILL. Yes, sir, I think the key to that—and I think the statement was made by Dr. Kaminski in his hearing with the Senate Armed Services yesterday—it all depends upon the threat. The threat that we are looking at now from a rogue state, unless the threat is purchased, and it is a front-line, sophisticated Russian system, could be handled by this architecture that you talk about as an early, maturing architecture. The kind of thing that Mr. Hunter talked about, the Taepo Dong II, for example, that kind of a system would be well within the capabilities of the kind of system that we would be talking about, which would be based upon today's technology. But the concern that Dr. Kaminski has is making sure that what we put out there can evolve gracefully to handle the kinds of threats that you might be worried about that are more sophisticated, smaller, colder, and include penetration, a modern Russian system.

Mr. DELLUMS. Final follow-on, Mr. Chairman.

Then, if we are talking about a much more sophisticated threat in the near term, i.e., scenarios about China and Russia, the assumption there is that the A part of our definition of missile defense is in place, that is deterrence, that that handles that level of threat.

General O'NEILL. Yes, sir.

Mr. DELLUMS. Thank you.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Dellums.

Mr. Peterson.

Mr. PETERSON. Thank you, Mr. Chairman. I am really not sure where to start. I would hope that these hearings would engage us, and we would learn more rather than us to come in here and essentially confirm what we already know. And I am not so sure that we really have done that. We are talking today about missile defense. If you look at our threat to this Nation, the missile threat is just a piece of that pie. And, therefore, in our micro-minute here that we are looking at this through this hearing process, we are not taking into consideration, I do not think, the bigger picture that Department of Defense [DOD] has to take in allocating resources against the big threat.

Now, I know my friend Mr. Hunter has had focus groups. Now, I am not a big fan of focus groups. Both parties use focus groups. They are infomercials more than anything else in my view. I mean, you sell hair tonic; you can sell virtually anything in one of those things. And I do not want national policy to be developed out of a focus group. But as a result of these focus groups, you all have had to answer questions, which the big one is if someone fired a missile at the United States today, could we shoot it down? Well, the answer is obvious. We all know that; everybody here knows that. But the next question I need to ask you——

Mr. HUNTER. When the gentleman gets finished, could he yield to me on that point.

Mr. PETERSON. Sure.

Mr. HUNTER. Because 90 percent of the American people do not know that.

Mr. PETERSON. Well, maybe they do not, but we should tell them.

The point is that the next question I need to ask you is that given this big threat picture and then our missile pie picture, is the threat so great that you think at this juncture that the American people are in jeopardy of immediate attack on Los Angeles, Alaska, Hawaii, wherever, to the extent that we would have to deploy a system immediately to meet that threat? Answer, one each.

General O'NEILL. Sir, I have to refer to my intelligence documents that say no.

Mr. PETERSON. Do the other services feel the same way?

General O'NEILL. There is no imminent threat.

Mr. PETERSON. So the answer is yes, we cannot; but no, we do not need to. Is that the answer?

General O'NEILL. At this moment, yes, sir.

Mr. PETERSON. So then, I think we get off on a little better playing field here. I do not want this scare tactic. I do not want us to sell bomb shelters. I want us to allocate national defense resources in such a way to meet the real threats that exist toward this Nation. Now, we can talk about all the technology; we can talk about the errors that you have suggested that exist in the NIE. We can do all of those things. But in the bottom line, do you feel that where we are going now in our funding and in our deployment, is it realistic, and is it supportable by the documents that you have in your threat statement?

General O'NEILL. Yes, sir.

Mr. PETERSON. And do the other services feel the same? You are all comfortable with what program has been established?

General O'NEILL. Yes, sir.

General BLACK. Sure.

General O'NEILL. That is the program we are here to defend.

Mr. PETERSON. If I were to go to the next step and we buy a system today, I mean we lock it up, we put the fence around it; we buy it. In 2003 or whatever, is that system technologically going to meet the threat at that time?

General O'NEILL. Sir, one of the hallmarks of the program that we are offering is that you do not have to make that decision today. You can wait 3 years and see.

Mr. PETERSON. My point.

General O'NEILL. Yes, sir; you do not have to decide——

Mr. PETERSON. So your answer is no; your answer is no. What I am getting to is that for $5 billion, you told us in an answer to a question, we can go ahead and deploy this system, and everybody is happy. My question to you, then, is if we actually pay out $5 billion—$5.5 billion, is it not, because we need 100 interceptors to do this 90-percent thing——

General O'NEILL. Yes, sir.

Mr. PETERSON. If we do that——

Mr. WELDON. Will the gentleman yield?

Mr. PETERSON. Let me finish.

Mr. WELDON. Well, you are building on my statement, and that is not what I said. I did not say anything about 100 interceptors.

Mr. PETERSON. No, but he did, because they said in order to add from the 40 to the 100, you had to have another half billion dollars; is that not true?

General O'NEILL. I think it was more than that but——

Mr. WELDON. That was to get to 100 interceptors, not to a 90 percent effective rate against 10 incoming missiles.

Mr. PETERSON. All right, but the point is——

Mr. WELDON. Well, that is the point.

Mr. PETERSON. For $5.5 billion, I am saying we are going to spend $5.5 billion; we lock it up; we spend it today; essentially, we have bought a boat anchor by the year 2004. Is that true or false?

General O'NEILL. The probability is that it would be very useful, but you are absolutely right that there is a chance that as the threat emerges, it is different than what you had already decided to deploy. And the advantage of the program that we are talking about is you have 3 years to work the relevant technologies and at the same time see what the threat appearing on the horizon is before you would even have to make that decision.

Mr. PETERSON. Right.

General O'NEILL. That is why we have put the program that we have together.

Mr. PETERSON. Well, I agree with that statement, and let me make it clear: I am a major proponent of maxing out whatever we have to do on the theater missile defense system. We must deploy them as quickly as possible. That is a real threat; that is an immediate threat. And I am not happy with the underfunding of THAAD, and frankly, I think it may be a manipulation of this committee to some degree to make sure that we beef up the funding. But that not regarded, I think that where we are on our plan, the 3 plus 3, makes so much sense because we are right on the thresh-

old of making these fine improvements on the technology we have invested in over the years, and we are now into the position of making the final decision of getting out, and we have 3 years to do that. So I am comfortable with where we are, and I would yield to Mr. Hunter for whatever comment he has on that.

Mr. HUNTER. I want to thank my friend for yielding. Let me just make a point. The ranking member has asked to define the word defense, and defense means more things than just shooting down the missile; it means deterrence also. The gentleman has built on that statement. The point that I made was that we do not have a physical capability to shoot down a missile if we needed to. Now, the American people know that we have retaliatory missiles. If you took a focus group of any group of constituents in the United States and asked can we respond if Russia or somebody else attacked us, the answer would be absolutely.

But they do not know that we have no physical capability to shoot down missiles if we want to. And I think it is a poor method of governing and being representatives if we do not give the facts to the people that we represent. And I was surprised when I discovered the American people do not know that we do not have the physical ability to shoot down a missile if we want to.

The second point with respect to the gentleman's statement of whether we have an immediate threat of attack from a third party, the point that was made was in the example of the Chinese stating that they hoped that we liked Los Angeles more than Taiwan if we should bother them with their ambitions with respect to Taiwan is the fact that we do not have the capability to stop them should they aim an intercontinental ballistic missile [ICBM] at LA is a very dangerous thing, because that affects our foreign policy; it inhibits our ability to fully protect a friend and an ally. So the point is we do not want to have to respond to China, but we also do not want to be in a position where we are intimidated by countries like China. So the fact that we are without the physical capability to shoot down a missile does inhibit our foreign policy, even if there is not an immediate threat.

And let me just tell my friend I think the fact that the American people do not know that we cannot shoot down incoming missiles, that we do not have a physical defense, is an important thing, and I am going to repeat that at every single opportunity. I thank my friend for yielding.

Mr. PETERSON. If I may, Mr. Chairman, just two followup points. One, the China threat to shoot a missile to Los Angeles [LA]: we have talked about the pieces of this puzzle, and one of them is deterrence. Now, they could launch a missile at LA; how stupid, how absolutely, incredibly that would be, because the retaliatory effect—I mean, we are not going to stand for something to that degree; we just would not. But the other point—and I think Mr. Hunter would agree that while we have the American people who correctly believe that we do not have the ability to shoot down a missile—or if they do not know that, we need to tell them—we also need to tell them the degree of threat under which the circumstance would be when we would have to shoot down a missile. That is the other part of this.

We cannot have one without the other. We cannot just arbitrarily say this question: did you know, by the way that we cannot shoot down a missile? That is not it. You have got to say the other side of this equation is that the threat exists to this level. Thank you, Mr. Chairman.

Mr. WELDON. Thank you.

Mr. HUNTER. Would the gentleman yield briefly to me?

Mr. Chairman, just one point?

Mr. WELDON. First of all, Mr. Peterson, Mr. Hunter has asked you to yield. If you want to do one more yield, I will do that.

Mr. PETERSON. Go ahead.

Mr. WELDON. And then, I will be happy to yield to the ranking member.

Mr. HUNTER. Just one point, my friend, because I think he missed the point with respect to deterrence. We do not want just to deter China from launching a missile system against the United States; we want to deter them from harming our neighbor, Taiwan. They have sent a muted message to us—maybe to feel us out; who knows why they made the statement, but they have sent that message to us—that I think it is fairly clear when they said words to the effect that we hope that you value Los Angeles more than Taiwan. If that statement intimidates us and keeps us from fully protecting our neighbor Taiwan, then that is going to be bad for American foreign policy, and it is going to be a direct result of our vulnerability to what is basically in my estimate blackmail, and that is one country that knows that it has the ability to explode a missile in or near Southern California basically saying to us they would not be beyond doing that if we protect our ally.

My point is we want to deter them from embarking on a foreign policy that harms our neighbors, and our vulnerability in this area of missile defense, our inability to physically stop somebody if they have the desire to do it from putting a missile in an American city is not good for our foreign policy. That is my point, and Mr. Dellums mentioned being intellectually honest. My point is that I think that if we are going to be intellectually honest, having the physical capability to intercept a missile is a part of the facts that the American people should know. They should know that we have Nunn Lugar, which I think most of them do; they know we are working with the Russians. They should know that we certainly have a lot of rocks to throw back; I think almost every American knows that. They do not know that we do not have the physical capability to stop missiles. So how can you build a consensus among the American people to build a physical capability to stop missiles if most of them think we already have it? That is my point.

Mr. WELDON. Thank you.

Mr. PETERSON. If I might just very quickly——

Mr. WELDON. There are other members who would like to speak. I mean, this is healthy, and I do not mind this but——

Mr. PETERSON. This would be just one instance.

The point I am making is that we do not. I agree, Mr. Hunter, we have not developed this capability. But we have a plan, a very reasonable plan of investment not only into the deployment side but into the modern technology to achieve where you are wanting to go. I think we want to go together on this. I am not denying this.

This is something I want to do, too. I want to do it in the most reasonable fashion that brings the entire threat picture of the nation into a perspective.

Thank you.

Mr. WELDON. Mr. Dellums, I will yield to you.

Mr. DELLUMS. I would yield back.

Mr. WELDON. Ms. Harman, you are coming up. We will get to you next in line.

Mr. Dellums.

Mr. DELLUMS. No, I would prefer that you recognize Ms. Harman. I think this serves no useful purpose for us to banter with each other hear. There will be time to circle the wagons and have an honest debate. But I think here, we ought to be trying to gather information, and I would like to hear from the gentlewoman from California.

Mr. WELDON. Before I yield to Ms. Harman, I have one question as a follow-up. And I do not mean to be confrontational with Mr. Peterson, but I want to ask a question because I agree with him: this debate should not be about oversensationalizing or emotion. And I would ask you a question, general. The president of the United States in the last two State of the Union speeches stood in the well of the House and told the American people that for the first time, we have no Russian missiles aimed at the United States children.

General O'Neill, how quickly can you retarget a Russian SS–25 missile aimed at this country? How quickly can you retarget that, General O'Neill? According to General Sergeev, who was on 60 Minutes, how quickly?

General O'NEILL. Sir, I am not an expert in that, but I would predict it should not take more than 30 minutes. I do not know.

Mr. WELDON. Thirty minutes? I thought General Sergeev said less than 1 minute.

General O'NEILL. Less than 1 minute? I would have to ask the table. I do not know.

Mr. WELDON. Does anyone else know the figure?

General BLACK. Fifteen.

Mr. WELDON. But the point is that I agree with Mr. Peterson about not making arguments that give the people of America the wrong opinion, and I would hope that you would convey that message to the chief administrator of this country as well as to those who may be overstating the missile defense case. It applies to both scenarios.

I will now yield to Ms. Harman.

Ms. HARMAN. Thank you, Mr. Chairman. I want to thank you again for coming to my Congressional district over the recess. It is home to the development and the deployment of much of the technology we are talking about today, and this is a subject I am intensely interested in. And I would point out if it is not obvious that there is strong bipartisan support in this committee for a right-sized ballistic missile defense program. I would also add that in the 103d Congress, the last Congress, I joined with then-Congressman Jon Kyl to plus up the BMD budget, and in this Congress, I supported the BMD plus-up, and I still do.

Having said that, nonetheless, I wanted to ask a couple of questions. But first, I want to say to you, General O'Neill, how much I will miss you. It took me two nanoseconds to sign the chairman's letter urging——

Mr. HUNTER. He may not miss us, though. [Laughter.]

Ms. HARMAN. Maybe not you, Mr. Hunter, but I know he will miss the rest of us. [Laughter.]

Mr. HUNTER. I think you are right.

Ms. HARMAN. It was an easy decision to sign the bipartisan letter urging that you stay in your job. I can certainly understand your desire to have new chapters; I am sad about it, but I can understand it. Sometimes, I have that desire too. But I can say that you have been extremely forthright, totally professional, and very helpful to this member during 3.5 years, and I plan to stay in touch with you and wish you the best.

General O'NEILL. Thank you very much.

Ms. HARMAN. A couple of questions. I tend to agree with Mr. Peterson that though I would probably want to spend more money now and may support a plus-up, depending upon what we propose around here—in fact probably will—I think this is a rational presentation by the administration, and it does give options—this 3 plus 3—to maneuver later. It reminds me of the game of tennis, where you run in from the baseline and plant your feet and then look to see what the opponent is doing and can adjust, and I think that is the concept here. But there are some other things in this proposal that I want to ask more about.

First of all, I understand—and I do not know what the latest play is—but that some 1996 money for the Space and Missile Tracking System—and I want to know if this is true—may be subject to reprogramming, about $51 million; is this correct?

General O'NEILL. Yes, ma'am.

Ms. HARMAN. Why might this happen?

General O'NEILL. The $51 million is part of the $135 million plus-up that Congress provided. I am going to let John Hawley comment in just a second, but let me give you my slant on it first. The way we allocated the $135 million resources for this plus-up was we wanted with $51 million to look at a low-cost experiment that one of the contractors recommended, the contractor that lost the original competition, because our acquisition strategy was to recompete at milestone two, out in the late 1998 time frame. And in order to do that, the program manager advised me that it would be better if that contractor had actually flown something. So the contractor came in with an unsolicited proposal suggesting this low-cost experiment. I fully supported it. When it went up through the coordination chain, it was decided that that would be subject to a cut out of the budget.

John, do you want to add anything to that?

General HAWLEY. Not really; it is just again the resource constraints. What the additional $51 million buys in the Air Force's view is risk mitigation. It puts us in a better posture, perhaps, to create the right competitive environment for TMD on SMTS. I would only add that it is the subject of an executive committee meeting tomorrow where they will be looking more closely at what the options are.

Ms. HARMAN. So it is not finally resolved?

General HAWLEY. That is correct.

Ms. HARMAN. Well, I personally would hope that this money does not disappear. I think this is a critical part of the program. And I understand the origin of it, but it sounds like this is not a risk-free option and that this may put some short-term advances in some jeopardy. And so I would just like to communicate my hope that you do not do this.

General HAWLEY. And, of course, the executive committee will make their recommendation to Dr. Kaminski on how to proceed.

Ms. HARMAN. All right.

General O'NEILL. Let me add, ma'am, that I am on the executive committee, and my recommendation is that we do not reduce that $51 million. I have one vote.

Ms. HARMAN. I hear you. Thank you, General.

The other issue I just want to raise for a moment—I have not heard it discussed much—is joint BMD development. I know you support this. I am a long-time supporter, for example, of the Arrow program, and I would like you to just address how we will incorporate the technology derived in the Arrow development in our BMD options, and, for example, is Arrow an interceptor vehicle candidate for any of the BMD options such as THAAD?

General O'NEILL. Well, let me first say that we had a very productive cooperative R&D program with Israel for some time in Arrow. The program has been successful and very highly successful in about the last year. It has achieved all of its experimental goals; it had a successful test just about a week and a half ago where it achieved all of its goals. We had significant transition of the technology from that test. They rushed back to America with films, and the data has gone to the Army in Huntsville. One of the major benefactors in the military is the lower tier systems, principally the Navy Area Defense system that is looking at infrared technology. The Army PAC–3 is a radar seeker, so it is not as directly relevant. On the Army side, however, the focal plane that is used on Arrow is really the choice for THAAD in its objective design, and the THAAD program is monitoring very closely the successes of Arrow, and it is a very healthy interaction, because the two are climaxing their development at about the same time, so there is a lot of very positive crosstalk between the two systems.

As you know, Arrow is the national missile defense system for Israel. It is not amenable to the deployability requirements——

Ms. HARMAN. Right.

General O'NEILL. And the mobility requirements of the U.S. military. However, it is better than PAC–3 in performance against ballistic missiles; not quite as good as THAAD against ballistic missiles.

Ms. HARMAN. I do know that, and I am pleased by your comments. This is my last question, but I just would like to say that for those who are not aware, the Israelis put up a substantial portion of the cost of the development, which is good in scarce resource times, but second, that the Arrow not only provides us spinoff opportunities, but sadly the Middle East continues to be at major risk, more so in the last 10 days than the 6 months previous to that. And it may be that sometime in the future, U.S. troops are

there again, and this technology could well benefit us in a theater missile defense sense.

General O'NEILL. Well, one of the comments I wanted to add, Ms. Harman, is the fact that some of the money—as a matter of fact, a large percentage—that is going into cooperative R&D with them in this last phase, the Arrow deployability phase of the program, is to make sure we can interoperate if we ever have to interoperate with the Israelis.

Ms. HARMAN. Thank you very much, Mr. Chairman.

Mr. WELDON. Thank you, Ms. Harman. I just might add that there is strong bipartisan support on this committee, as you know, for the Arrow program. As a matter of fact, it was Duncan Hunter and I who wrote to the Israelis in 1987 suggesting to them that they drop the Lavi program they were working on at the time and move toward a missile defense program, which is the Arrow program. So we are strong supporters. As you know, we went to the wall last year with the appropriators; we are prepared to do so again this year because of our commitment to that technology and to that program.

Mr. Longley.

Mr. LONGLEY. Thank you, Mr. Chairman.

General, I will not ask you if your hair was gray before you took on this assignment. [Laughter.]

General O'NEILL. It was gray when I was 26, Congressman.

Mr. LONGLEY. I understand that the joint conference report for the fiscal year 1996 budget authorized $30 million for the AIT program, and other funds were appropriated for national missile defense and theater missile defense projects to support this level of funding. Yet, to date, only $15 million has been actually authorized by BMDO for advance interceptor technology [AIT], and apparently, of that $15 million, only $10 million has been available to the contractor team. I am advised that the contractors believe that there could be significant delays in the program. And I would like to know, first, whether the AIT funding authorized and appropriated in the fiscal year 1996 budget will be forthcoming so that the project can proceed in a timely fashion. And, maybe on a broader level, does the Department plan to obligate during the current fiscal year all of the funds for NMD that were approved by the Congress for this fiscal year? And if not, why not?

General O'NEILL. Sir, let me first answer the last part of the question: the NMD funds. It is my intent to obligate the funds in 1996. Because of the late start and the withhold, it may be more propitious for us, because of things like contracting lead times and exchange of RFP's and proposals and things like that, that we would not obligate the money—put it under contract, as it were—until the next fiscal year. One of the things we are looking at, for example, is a contract for a booster for national missile defense. My procurement people are looking at the cycle that we have to go through—and one of the options we are looking at in the booster is the Minuteman, so we have to orchestrate this program credibly. So some of the moneys that we have put aside for the booster program may not be obligated until we think it is right to obligate those funds, and that could be early in fiscal year 1997.

We always try to obligate the moneys in a timely way. This year was a unique year because of the program review. We have only had the withholds released on the plus-up dollars in the last week, and that is part of our reason for suggesting we may have to carry some things over.

Insofar as the AIT program is concerned, the AIT program was connected very strongly and was strongly synergistic with the boost phase intercept program, which, as you recall, Congress zeroed in fiscal year 1996. We decided in the DOD to embark on a strategy that put the Air Force's airborne laser as the lead boost phase intercept option for theater missile defense, and the backup program was to be the unmanned aerial vechicle [UAV] launch boost phase intercept program, which is a program we are looking at cooperatively with Israel, as a matter of fact.

The dollars that have been allocated in the 1997 budget as you see it for that program are $10 million. There is $7 million allocated, I think, for AIT. We did not feel that committing $30 million, if there was not the out year support in 1997 and out, was a prudent course. So it is my intention right now to commit $10 million in 1996 for AIT, but I would be very interested in speaking with the Congressman about his concerns in that regard.

Mr. LONGLEY. I appreciate that.

I would just like to also pick up on a theme that was raised by Representative Peterson a few minutes ago, and this comes back to this whole Los Angeles scenario. And again, my concern is—and having served in Northern Iraq, I do not make any assumptions that any of the leaders that we might confront are rational enough to understand the potential implications that might ensue, should they do something so rash. But from a strategic standpoint, given the fact that that capability may exist, could you comment on what the decisionmaking scenario would be that might ensue to the extent that we did or did not have the capability to defend against that missile?

General O'NEILL. Well, that is a very difficult question, sir. And as a developer, as opposed to a war fighter, it is mere speculation on my part. But I would be much happier if we had a defense than if we did not have a defense if that kind of a scenario was facing us. It does not make me feel any better to know that I can kill as many people as my enemy kills. One of the very rewarding things about missile defense is that, hopefully, no one gets killed when my weapon works. When my weapon works, a very harmful system is negated, and I feel like a protector rather than a devastator. And that is the philosophy I like to have; I like to be able to protect myself at all times in all scenarios.

Mr. LONGLEY. If I could just add, Mr. Chairman, is it fair to conclude that, in the absence of a system, we are confronted with a scenario wherein we have the potential for the loss of, frankly, mass casualties or significant damage?

General O'NEILL. Yes, sir.

Mr. LONGLEY. And thus are faced with almost the lack of options in terms of the fact that we must respond versus a situation where, if we can destroy it and prevent any damage, we have frankly prevented, or maybe precluded, the need to take any action in response?

General O'NEILL. Yes, sir; I am above my philosophical qualification now, but I would suggest that if you only have a deterrent strategy, it will not work unless the other side understands how you will respond or could respond.

Mr. LONGLEY. Let me just finish on this. I am looking forward to spending some more time personally——

General O'NEILL. Yes, sir.

Mr. LONGLEY [continuing]. In terms of getting up to speed on a lot of these systems.

General O'NEILL. I would be happy to, sir.

Mr. LONGLEY. But I appreciate your testimony. Thank you, General.

General O'NEILL. Yes, sir.

Mr. WELDON. Thank you.

Mr. Taylor.

Mr. TAYLOR. Thank you, Mr. Chairman.

I want to thank the panel for staying around so long. I know you are busy people.

Please correct me if anything I have said is out of line. It is my understanding that during the combined Reagan and Bush presidencies that somewhere between $30 and $33 billion has been spent on total missile defense. It is also my understanding that during the Clinton years we have spent, or will spend, somewhere in the neighborhood of another $10 to $12 billion. My question following on that is, at what point do we start measuring results by ability to protect troops in the field and ability to protect a given region rather than in dollars? Because, as Mr. Hunter told us, if it was dollars alone, then those folks watching C–SPAN back in 1986 when President Reagan was talking about Star Wars, they felt like we were safe, and obviously we are not.

Are we at a turning point? Are we someplace where you can reach out there and say that in a few years, we will be able to protect the troops in Korea? And I guess the followup on that is, are there not literally tens of thousands of artillery tubes within range of the troops in Korea? And are many of them not capable of firing a biological or a chemical weapon? And even if you do address—and we should address—the missile problem, is it not also fair to say that we should never lead the American people to believe that the troops are never going to be vulnerable to some extent?

General O'NEILL. Well, everything you said, sir, is exactly correct. I would start measuring results today, but the results on your terms, which are numbers of troops protected or regions protected, are small. There are smaller numbers of troops protected than I would like to say. I think that a force going in now to Korea—if you look at the number of critical assets that can be protected, you can measure the numbers of troops protected in probably a number like 10,000 or so, maybe more. Regions are small, because we have limited areas to protect. I think the maturation of the systems that these gentlemen on my left are developing—Navy Area, Navy Theaterwide, THAAD and Patriot—when those systems come into the field, you can talk about protecting millions of people against theater ballistic missiles.

As far as the other weapons of war, you are absolutely right. There are tanks, artillery, tactical weapons of all kinds. There are

air-breathing threats, cruise missiles, aircraft, all of which can devastate an opponent and for all of which a military mind has to consider the alternatives. We have ways to combat tanks; we have ways to combat fighter aircraft; we have ways to combat tube artillery. The MLRS system, which I had the outstanding pleasure of being program manager for—and this general was my Department of the Army coordinator for that system, multi launch rocket system [MLRS]—will make it very difficult for the 10,000 tubes of North Korean artillery to exist on the flop, because we can pour ammunition to a range greater than the range of those artillery tubes from MLRS on them if they decide to come after us. So we do have things we can do about the whole suite——

Mr. TAYLOR. In retaliation.

General O'NEILL. In retaliation.

Mr. TAYLOR. But once an artillery round leaves the chamber, it is like that missile. You cannot stop it either.

General O'NEILL. Absolutely; no, sir. You cannot stop it.

Mr. TAYLOR. And it could be biological or chemical or nuclear.

General O'NEILL. Exactly; yes, sir.

Mr. TAYLOR. OK, and again, I say these things not as a profit of doom, but I just think folks need to know that, including some folks in this town.

Let me ask you about a personal concern. Four million cargo containers a year come into this country. Less than one-tenth of 1 percent of them are inspected. As you go to so much trouble to hopefully give us some defense against this missile that Chairman Hunter and several others have mentioned possibly going toward Los Angeles, is there an effort to in some way give us the assurance that what comes into this country is not a chemical or a nuclear or a biological device? I mean, in a Nation where something like 70 percent of the people live within 50 miles of the shoreline, that is also an incredible vulnerability, is it not?

General O'NEILL. Yes, sir. I think we have to look at all of the means whereby our country could be threatened, and there are any number of means. My particular charter is to provide a capability against a threat that right now is invulnerable. You cannot do anything against it. I mean, even if you knew the container was coming, if it is coming at 5 kilometers a second, there ain't nothing you can do but watch it. And a lot of Americans think we are as concerned about ballistic missile attack as we are about containers.

Mr. TAYLOR. If I can, one last question. I know my time is running out. You are close to retirement. I hope you feel free to say anything that you want to say, and I will hope, going back to what Mr. Bateman asked you, that you will personally give us what you think the game plan ought to be for this year.

General O'NEILL. Well, thank you very much, sir. It has been a pleasure working with you.

Mr. TAYLOR. Well, you have done a great job, and I hope that you will tell us from your heart and from your mind those things that you feel we need to put into the defense authorization bill for this year. And we will take it from there, and hopefully we can do those things.

General O'NEILL. Thank you, sir.

Mr. TAYLOR. Thank you, sir.

Mr. WELDON. Thank you, Mr. Taylor. And just for the record again, our subcommittee, with Mr. Taylor's support, did plus-up funding for the DOD to work on terrorist threats in last year's defense bill. And that will again be a priority of this subcommittee in terms of plussing up dollars in that area as well.

Mr. McHale.

Mr. MCHALE. Thank you, Mr. Chairman.

General, I apologize. I had a conflicting meeting, and so I am afraid that having just entered this room a few minutes ago, I am probably going to cover some ground that you have previously addressed. And to the extent that this is repetitive, I regret that.

I strongly support research and development and deployment of theater missile defense capability. I strongly support research and development into national missile defense. But I remain skeptical with regard to the deployment of national missile defense. What I would like to do is ask a series of questions just to clarify where we stand. Do we have the technical capability to effectively defend our Nation against a massive ballistic missile attack?

General O'NEILL. No, sir.

Mr. MCHALE. How close could we come to that kind of capability?

General O'NEILL. If you are talking about a massive Russian attack against the United States in terms of closeness in terms of years?

Mr. MCHALE. Effectiveness if there were to be a launch of a certain percentage of missiles, and we would agree that it consisted of more than a terrorist or a limited attack, that it was a massive attack upon our Nation. What percentage of those missiles, based on our projection of technical capabilities, that we could develop in addition to what we have now? What percentage of those enemy missiles would penetrate our shield and devastate American targets?

General O'NEILL. Well, sir, in the early days of the SDIO program, we developed architectures that could speak to that kind of a threat. The architecture required space-based sensors, space-based weapons, ground-based sensors, and ground-based weapons. This program has evolved to a program that has stretched significantly the aspirations for that kind of an architecture, and it is focused on not a massive strike, and the reason is that we are trying to work within the deterrence philosophy that this Nation has adopted over the last 30 years and which has worked very successfully. And for that reason, we feel that we can do what I am talking about doing without threatening that kind of a scenario.

Mr. MCHALE. General, I understand and I, in fact, have read many of those reports—not all of them, but many of them. Your answer was what I anticipated. The fact is that, even if we pressed forward as rapidly and effectively as we could, we do not anticipate the technical capability of an invulnerable shield against a massive attack. So what we are really talking about is the development of an effective shield against a more limited attack.

General O'NEILL. Yes, sir.

Mr. MCHALE. And that really comes to the heart of my question. And this is too important an issue for any Member of Congress to have a position that is inflexible. I want to keep an open mind on these subjects. But the concern I have is this: During the Gulf war,

Saddam Hussein constructed what he believed to be an impenetrable static defense, and he felt that we acted unfairly when we attacked from the flank. We refused to go into that defense; and instead, by maneuver warfare, we circumvented it.

If we were to develop an impenetrable missile defense system that would guarantee the safety of our Nation against a limited missile attack, why would an enemy choose to attack into that defensive system? With the miniaturization of nuclear devices and alternative means of delivery, why would we not be the subject of maneuver warfare? Why would our enemy not choose to come in under the umbrella or exercise a delivery system against which our defense would be ineffective?

General O'NEILL. Well, sir, as far as I am concerned, I would love to see ballistic missiles become impotent and obsolete and allow the enemy to have to consider his investment in what will he do next. And that is the give-and-take, I think, that one sees in our business. Ms. Harman was talking about tennis. If I find out that my opponent in tennis has no backhand, guess where I am going to hit my tennis ball?

Mr. MCHALE. Well, I understand that. But, general, what I am getting at is this—and again, I do not state this aggressively; more from a perspective of honest inquiry.

General O'NEILL. Yes, sir.

Mr. MCHALE. We were smart enough not to attack into the enemy's defenses. Should we not assume that our enemy would be intelligent in choosing a delivery system other than that to which we had a defensive system in place? It just seems to me that with alternative methods of delivery, we must be cautious as we dedicate a large percentage of finite resources establishing a defensive system much like Saddam Hussein's minefield——

General O'NEILL. Yes, sir.

Mr. MCHALE [continuing]. Where the enemy could choose to circumvent the defensive posture. I present that to you because it is certainly not farfetched for us to conclude that, even if we could establish a limited umbrella—and I am inclined to be supportive of that—we should not fool ourselves into thinking that that umbrella is impenetrable in the sense that the enemy must attack into it. That may have been true in terms of the delivery of a nuclear device two or three decades ago, but with the miniaturization we see today and the almost unlimited ways in which that weapon could be transported to a target, we need to recognize that just as we did not attack into the defense, a future enemy of ours would show equal intelligence.

My time is up, but that frankly is an issue that remains before us.

General O'NEILL. Well, I would commend the Congressman to the existing NIE on the threat to the United States. I think it would resolve some of your concerns, because it is very clear about what the potential rogue nations are doing, and they appear to be working on things that would cause us to have some concern about defending ourselves against ballistic missiles.

Mr. MCHALE. I have that concern, and I would like to seal that method of delivery in terms of an option available to them. But once we seal that door, we have to recognize there are——

General O'NEILL. Yes, sir.

Mr. MCHALE. Many other options that are currently available.

Mr. Chairman, I thank you.

Mr. WELDON. Thank you, Mr. McHale.

Mr. Chambliss.

Mr. CHAMBLISS. Mr. Chairman, I apologize for being late, and I do not have any questions to ask these gentlemen.

Mr. WELDON. Thank you, Mr. Chambliss.

We will start the second round of questions. General O'Neill, following up on Mr. McHale's comments about the threat of an all-out attack versus a very limited attack: I think the threat is for either a threat or perhaps a limited attack, but really a threat more than perhaps an actual launch. But I am also concerned about the proliferation that is occurring. And as you are aware—you read the Washington Post and the news media. In mid-December, there was a report in the Washington Post that the Jordanians and the Israelis intercepted some advanced accelerometers and gyroscopes that had Russian markings that were headed from Russia into Iraq. We know that is not the only occasion, because we have also found some similar devices I think in the Tigris River from an earlier attempt by the Iraqis to hide them. My understanding is that technically, these devices could only be used for a long-range ICBM, that that is their purpose, and that is what their use would be.

This is not your area, but I am going to ask you to respond to a portion of this. My concern is that, when I queried the administration about whether or not we had demarched the Russians officially on this technology transfer, the answer was no. Now, we talked about deterrence a little while ago, and Mr. Dellums got into deterrence and how we use a variety of means—agreements, treaties we enter into. One of those is the Missile Technology Control Regime, which this administration rushed Russia into last August and September—and I had personal meetings with the administration on that issue at the time—because of whether or not Russia was, in fact, I think, ready for, in my opinion, the compliance controls required by the MTCR.

But I think one of the reasons—and I am speculating here; and I have a right to do that as other members do—that the administration has not asked the Russians the question as to why or how these devices were moving is because it would then lead to one of two answers: Either they were deliberately being transported to Iraq, or they were being illegally transported to Iraq. In either case, being a problem for this country; in either case, being a violation of the MTCR, which then would lead to economic sanctions, which would then lead to perhaps an undermining of our relationship with Russia. And that scares me. When the administration is using deterrent agreements that we have agreed to, and that we are agreeing here today are important parts of our relationship with Russia, but when they are in place we do not follow through on them, what good are the deterrent agreements? That is what scares me.

So my question to you is, what do you know about the technology transfer of the gyroscopes and the advanced accelerometers, if anything?

General O'NEILL. Sir, I do not know a lot, and what I know, I cannot talk about in an open forum; no way.

Mr. WELDON. Thank you. General O'Neill, the administration has said that, from a policy perspective, boost phase interceptors are the most effective form of missile defense. Our fiscal year 1996 authorization report agreed with you that the space-based laser was the most capable system under development for boost phase defense. Our report asked you for a funding profile that would allow for the launch of a demonstration space-based laser in 1999. Would you tell us about the usefulness of the space-based laser [SBL] for boost phase defense for TMD? And would you tell us what would have to be done to meet the objectives of our authorization report for the space-based laser? And also your personal comments: 20 years from now, is it going to be necessary to have a space-based capability in your own personal observations?

General O'NEILL. Yes, sir; let me answer the last question first. I think space is the most obvious place where significant leverage could be obtained in a ballistic missile exchange or even defending against high-flying aircraft or cruise missiles. And the weapons that we analyzed and did studies on in the old strategic defense initiative organization [SDIO] program had significant leverage when you talked about more than a limited attack, and those are the ones that I think some day we will have to take under consideration as we move from a strategy based upon mutually-assured deterrence to a strategy of mutually-assured survival.

Speaking of the SBL program, the space-based laser [SBL] program right now is a technology program. It is a dollar-limited program. It has been a very successful program, but it is a prisoner of its own success. The next step of the program is to do a large experiment, either a large experiment in a chamber—we have looked at places like White Sands where we would do the experiment—or to actually do a space experiment. These kinds of things can be done very easily treaty-compliant, so the treaty is not the issue. The issue is the cost and whether we want to do that before we want to do these other program elements that we are talking about today. I think the administration supports a technology program in a space-based laser, but we do not have the resources to fund a space-based demonstration in 1999 that you have identified. I could provide for the record what that kind of a technology program would cost.

Mr. WELDON. I would appreciate that.

General O'NEILL. It certainly would not be significantly risky, but it would be costly.

Mr. WELDON. Let me ask my colleagues—we have four here—how many more questions do we have?

Mr. Spratt, do you have more questions?

Mr. SPRATT. A couple questions.

Mr. WELDON. Mr. McHale.

Mr. MCHALE. No.

Mr. WELDON. Mr. Chambliss.

Mr. CHAMBLISS. No.

Mr. WELDON. Mr. Hunter has more questions.

It is my intent, then, to continue through the hearing and finish it up. Mr. Hunter is over voting; he will be back. I have a number

of other questions, some of which I am going to put into the record and ask you to respond to, very specific programmatic questions, because as you know, this hearing is primarily designed to be a program discussion.

General O'NEILL. Yes, sir.

Mr. WELDON. Our hearing last week, as you also know, was designed not to talk about programs but very specifically and partially to answer Mr. Peterson's questions, to bring in the Air Force out there saying it can do for $3 billion a limited national missile defense system, so those questions can be answered. We will have that hearing as soon as we can work out an acceptable date but also to work with you in other hearings involving the threat and perhaps in a closed session some things we cannot talk about here in terms of our capabilities in response to what is being developed.

I would at this time yield to Mr. Spratt for his additional questions.

Mr. SPRATT. Thank you very much, Mr. Chairman.

General O'Neill, in your testimony, you were summarizing and coming to a conclusion. There were two significant sentences toward the end that I would like to read and ask you if these are indeed your unqualified sentiments. First of all, on page 16, you warn that: "Efforts to develop and deploy an objective and highly-capable system if not carefully evaluated," you say, "could become technological cul-de-sacs. Simply put," and quoting, "near-term options might not field an initial system that could be evolved to a more effective defense. The trade-off we must consider is between earlier deployment of a less-capable system or later deployment of increasingly effective defenses for the U.S. homeland. Our 3-plus-3 approach is designed to provide an early deployment opportunity which can evolve robustly with the threat and meet operational needs."

Then, on page 18 you say: "I strongly endorse staying the course with the Department's current NMD strategy while continuing to protect our earlier deployment options. I think that is a prudent course of action." Are these your sentiments?

General O'NEILL. Yes, sir, they are.

Mr. SPRATT. Thank you very much.

Mr. WELDON. Mr. Chambliss, do you have additional questions?

Mr. CHAMBLISS. No.

Mr. WELDON. General O'Neill, in terms of the followup to the earlier questions we had on national missile defense and our capabilities, the administration is coming forth now telling us that they have, in fact, increased or improved their focus on national missile defense with the 3-plus-3 or a variant 2-plus-2 that is not getting much attention from those who are detracting from this effort to focus on national missile defense. Either way, we are talking about a system that could be deployed by the year 2003; is that correct?

General O'NEILL. Yes, sir.

Mr. WELDON. Now, as I understand it, that was a part of our defense authorization bill last year. So does it not really come down to one basic word, and is that word not deploy? Is that not what really is the stumbling block in terms of whether or not we are actually going to make a commitment to finally do something in terms of deployment or whether we are going to continue to spend

money on studies and preparations? And actually, we had Keith Payne in here testifying last week. He said that the concern from the Russians is that they do not think that we are going to deploy, and that they are not going to be serious about our efforts because we still have not made the decision to actually deploy. And is that not what we are really talking about here? And in the end, we are not talking about a date of 2003, because even the administration's current plan says that that is achievable. We are not talking about, as the President said, tens of billions of dollars, although that could be with a very elaborate architecture. And we are not talking about an ABM Treaty violant right now, because we can deploy a system that is in fact within the terms of the ABM Treaty. So are we not really talking about whether or not this administration or this Congress has the guts to say we are going to deploy a system that the Russians already have? Do the Russians not already have an operational ABM system?

General O'NEILL. Yes, sir, they have an operational system. I think the issue is whether we need to make that decision to deploy now or whether we would want to see how things evolve while we are retaining the ability to get 6 years away, then 5 years away, then 4 years away, then 3 years away from this deployment, as we see this evolution of the threat, whether we really have a threat from northeast Asia, which is the one that looms on the horizon right now; what happens in Russia. Congressman Spratt mentioned cul-de-sac. If it turns out that there is a nascent threat from Russia, then we might have to focus on other kinds of defensive technologies like, as you mentioned, the space-based laser. That is the kind of a technology that one would have to move to the forefront if one were worried about a larger threat.

Mr. WELDON. Is that not always going to be the case? I mean, we are not seriously thinking that somehow in 3 years, every known technological advance is going to be on the table.

General O'NEILL. No, sir.

Mr. WELDON. Is that not always going to be the problem?

General O'NEILL. Yes, sir, that is going to be a problem. And I think what the administration is saying or what we are saying is that if you want to make the decision today, you can have something in 4 years; if you want to think about it, give us this R&D program, a robust R&D program; you have 3 years to make that final decision, and we can still give you a capability 2 years later than you would have gotten it if you had made the decision today.

Mr. WELDON. I understand that premise, and I understand where you are coming from. And I would like to think that I understand where the administration is coming from in terms of their commitment to eventually deploy. I guess that is where I have my doubts. You know, talk is cheap, and this administration, unfortunately, in the past in terms of missile defense has talked a good game. But when it comes time to putting up or shutting up, I have not seen the commitment in a real way to respond. Even the priorities that this administration, through you, have outlined today, Navy lower tier and PAC–3, have slipped. Now, you said that they have slipped because of what? Technical problems or problems that were not——

General O'NEILL. Yes, sir, those were fact of life slips.

Mr. WELDON. Why were they fact of life slips? Were they because we had not put enough resources in early on, or why were the fact of life slips?

General O'NEILL. No, sir; they were fact of life slips because in testing, what we anticipated would be easy to do in an engineering sense turned out to take 2 months longer than we thought it would take. It was the best guess of the engineers, who have significant experience in programs like AEGIS and standard missile, and they said by date such-and-such, we will have this window tested. Well, by date such-and-such, they were still 2 months away from having the window tested, and we jumped all over them, but at the same time, we understand that Mother Nature is not always an easy person to work with.

Mr. WELDON. General, would you focus for a few moments on the airborne laser? We have had some discussion of that here today.

General O'NEILL. Yes, sir.

Mr. WELDON. Or before we get to the airborne laser, let me ask this question, because Mr. Hunter—in case he does not get back—did ask me to get this on the record. Were you consulted in the decision in response to General Luck's inquiry to General Shalikashvili? Were you consulted, or was anyone from BMDO consulted to your knowledge in that decision?

General O'NEILL. No, sir, not at all.

Mr. WELDON. Have you had any communication at all with General Luck on this issue?

General O'NEILL. I have not directly, no; no, sir.

Mr. WELDON. So I guess you would not want to comment on the——

General O'NEILL. I have talked to his staff. I am aware of the message, and you purport correctly what General Luck said, and you purport correctly what the Joint Chiefs told him in answer.

Mr. WELDON. That basically, it was a dollar-driven decision.

General O'NEILL. Roger.

Mr. WELDON. And the real concern that many of us have here is that in the time that I have been here—10 years—I have only seen one other time when the administration has exercised political or dollar judgments over a decision to support a request by an in-theater commander, and that was in the Somalia operation when we denied a request that our Secretary later said was based on the political climate inside of the beltway. And it disturbs many of us that we have a theater command officer who is saying to us that he needs this capability, and we are saying well, we are sorry; we agree the technology should be there, but we do not have the dollars to put to it.

And we talking about dollars, and dollars are relative, as you know here. We are not talking about a major portion of the defense bill. In fact, what are we talking about percentagewise in terms of the total defense spending in terms of both the THAAD program and in terms of your budget? What are we talking about percentagewise?

General O'NEILL. Well, my budget is 1 percent of the defense budget, a little more than 1 percent of the defense budget.

Mr. WELDON. So the THAAD portion——

General O'NEILL. The difference in THAAD was a couple hundred million, so that is a tenth of a percent. Yes, the $200 million in THAAD, what is that out of a $240 billion program?

Mr. WELDON. So it is a tenth of 1 percent?

General O'NEILL. A tenth of 1 percent.

Mr. WELDON. So for a tenth of 1 percent of the DOD bill, we have told General Luck take a hike; we are not going to give you the request that you have asked for to support—that to me is absolutely outrageous, and that is something that we are going to deal with in this session of Congress in a very real way, and hopefully, we will deal with it in a bipartisan manner.

General O'Neill, you have heard us say that we are going to ask for your suggestions assuming that we do plus up the accounts—and I would repeat that again; we do not want to go off in directions that are contrary to what best judgment tells us are realistic, but we do want to make decisions for any available dollars that we may find to supplement the priorities that you have in each of the areas, and we are talking about national, theater, cruise, and space-based capability in terms of brilliant eyes, sensing capabilities.

General O'NEILL. Yes, sir.

Mr. WELDON. You have talked a little bit about cruise missile. Last year, we plussed up the cruise missile accounts because we felt in our hearings that we were not doing enough in the area of cruise missiles, and we also required that DOD perform a study which you are saying is coming very close to being concluded that would give BMDO more oversight in terms of the cruise missile capabilities. So in your assessment to us financially, I would also ask you to include each of those four categories again this year and to be as honest as you can, assuming that this Congress will give some additional dollar consideration.

We had planned to take a different approach this year than last and work very closely not just with the appropriators as we did last year in the House but also with the Senate authorizers and appropriators so we do not end up with the kind of battle that we had at the 11th hour last year to get a bill through, so hopefully, we will be a little more successful in our attempt to provide a final figure.

Let me get back to the airborne laser question and ask you to follow through on ABL and any additional comments that you would make. How many ABLs would be needed for a major regional conflict? Tell us why they would be needed. What would such a system cost us? Here is your chance to make the case for ABL.

General HAWLEY. Certainly. Well, as I said in my opening remarks, we believe that there have been some technology breakthroughs that will allow us to demonstrate and field an airborne laser system, primarily in the area of adaptive optics is where one of the major breakthroughs has occurred. We see it very much as a revolutionary capability, a revolutionary development program, if you will, similar to Stealth, or it falls in that category. It is not incremental; it is something totally new. What we are looking at is again, we have funded the demonstrator through the FYDP at about $775 million, which will give a prototype capability of one

aircraft in fiscal year 2002. The full program and the requirements for two orbits in one major regional conflict is seven aircraft, and that is what the program is driving for, with an initial operational capability [IOC] of fiscal year 2006.

Mr. WELDON. Very good; anything else, General O'Neill?

General O'NEILL. No, I do not need to add anything to that. That was excellent.

Mr. WELDON. Our time is running out, so please discuss support technology. You have in the past called for a robust support technology program. Is the 1997 budget request sufficient? Why or why not? And both officially and personally, if you would respond to us with your feelings.

General O'NEILL. Well, sir, as we often do in our programs, when the priorities change, the lower priority systems pay some of the bills for the higher priority systems. And as you know, my priorities right now are theater missile defense, national missile defense, supporting technologies. So it is number three in the queue. It is at the bottom of the queue. So I have been very severe in cutting back our seed corn for the future. What this means is we may be able to get the first systems out in the field, but if there are countermeasures like some that have been mentioned, we will have a difficult time coping with those countermeasures. One of the areas in our technology program is SBL, which is now funded at $30 million for a component technology program. We would need additional resources in the SBL Program, and when I provide the numbers for what I think it would take to comply with last year's authorization instructions, I will include the SBL number, and the number is probably $50 million or more, I would think.

There are other technologies that are very important, and I will not give you numbers because I feel that it is rather crass. But there are technologies that we are not doing that we really need to be doing if there were resources available. And, of course, I want to coordinate all of these things with Anita Jones and others in the building when I say that these are not available. But in the area of our radars, we need to upgrade the power capability of our radar transmit and receive modules. We need to be able to communicate with our interceptors in flight and provide them updates over the horizon. That is something that we would do by communicating through satellites with our interceptors. That is something that cannot be done right now, and my technologists think it is a shame because it limits our horizon for doing a ballistic missile defense conventionally.

We had the question from Mr. Longley about the [AIT] atmospheric interceptor technology. In order to do what Mr. Longley was talking about, that would take additional resources. One of the initiatives that we were talking to Australia about was their capability in netting long-range sensors with systems like ours. That is a program that was unfunded, and that is a program that I think could be very helpful for us, and we could get a lot of leverage from the Australians. Advanced propulsion so that our systems can, in a smaller package, carry more weight faster is another system that we could consider, those areas. And that is basically it. There are some other things, but they are minor.

Mr. WELDON. Thank you, General. And just in summary—and this is not a set-up question—but I just seem to recall when you came before us last year your saying that the budget that was being presented for missile defense was a barebones budget.

General O'NEILL. Yes, sir.

Mr. WELDON. And that if we went below that, we would really jeopardize the program and the quality of the program.

General O'NEILL. Yes, sir.

Mr. WELDON. And yet, this year, we are coming in with a quarter-billion dollars less than what was proposed last year, and I have a tough time in my mind just understanding that. I understand that you are putting forth the administration's plan, and I understand that, and I understand that game. But that is what I think also raises questions on both sides of the aisle here in this committee and in the Congress about, well, hey, what is the real number? What is the right level? And we have squeezed our Defense budget so dramatically that you have all been squeezed to the point because you do not have the big ticket, sexy programs like the new attack submarine, the B–2, the new advanced fighter and the V–22 and all of those programs. That is what is hard for those of us to understand, those of us who have no parochial interest in our districts but who really want to support what is right for the country. And, you know, you do not have many in here who are just supporting you because of the parochial partisanship. That does not play like it does with the bigger ticket items.

General O'NEILL. Sir, what we had to do, this program that I am briefing you on today is a new program. It does not resemble totally the program from last year, which we projected around the $3 billion mark. There is a new THAAD program. There is a new Navy Theaterwide Program. Some of the programs are smaller than they were last year, and I think that is why this is a new piece of missile defense.

Mr. WELDON. I understand that, but I just hope it is a program that in the end will provide for us the kind of robust program that you have described for us. I understand the budget. I am a Republican who voted against the B–2 bomber, and I understand the budget constraints. So I am not afraid to make those tough decisions. All I want are the straight answers. And Mr. Peterson got into the capabilities, and at some point, we are going to have General Linhard in here with you, and he is going to say that the Air Force can do a 50-State 90-percent effective program for about $2.5 billion. That is not me saying that; that is an Air Force three-star general. So we are going to go through those issues this year, and with your cooperation and guidance, we will look at all of the various possibilities that are out there.

One final question. General Black, I have got to get you to respond to the plan to purchase 40 THAAD deployable prototypes. Is this an appropriate number of UOES missiles? Should more be produced? Why or why not, and how do we do buy back?

General BLACK. The plan that we have had all along was to buy 40 UOES missiles that would be used as General O'Neill described them in the developmental as a program as developmental test items. In the drawdown or the funding reduction, we have had to stretch that UOES program out to lower the production rate of

them and also move that program, the production of those further to the right. So our UOES capability is not only coming much later, but it is coming much slower, which is what has moved our UOES capability that was described not only by General O'Neill but also by the Secretary yesterday.

That capability can be speeded up with the infusion of money in 1997, and the production rate can be increased back to where it was, which would allow us to pull in the out years of this program again. So I think the UOES is an appropriate thing to do. I think it should be speeded up. I think if we retain the current structure of the program that we probably need to buy more UOES missiles in order to keep the production line viable so that we do not have to end up paying additional costs for nothing by shutting the production line down at the end of the UOES and then starting it back up again at a later time. So it would make, I think, a prudent investment to anticipate purchasing more UOES missiles, given the stretchout of the program. If we are able to restructure the program again to get back closer to where we were before, the 40 missiles may be the right number again.

Mr. WELDON. Thank you.

Well, we have come to the end of the day. I missed one vote; I cannot miss another one. And it looks like Mr. Hunter did not come back to rescue me. [Laughter.] So I had to give up a vote for Mr. Hunter's sake, but it was worth staying here.

Once again, let me repeat that you are excellent witnesses. General O'Neill, we are going to miss your presence next year at this table, hopefully, when we have a more supportive administration dollarwise and programwise, but I would like to thank you for the work you have done on behalf of this Nation. You are a true American hero and someone whom we can all look to with a great deal of respect and admiration. You have done your job well, and you have laid a foundation for us to protect the American people in a way that we have not been able to protect them in the history of this Nation.

We thank you for your testimony; we thank you for your service; we thank each of you for coming in, and I would invite all of you to come over to room 2337 at 1:30, where we are going to do a nice little press conference with Jeff Skunkbaxter on missile defense.

Thank you. The hearing is now adjourned.

[Whereupon, at 1:30 p.m., the subcommittee adjourned.]

BALLISTIC MISSILE DEFENSE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
Washington, DC, Thursday, March 21, 1996.

The subcommittee met, pursuant to call, at 10:05 a.m. in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. The subcommittee will come to order.

The Subcommittee on Military Research and Development meets today to receive testimony from respected outside and Department of Defense witnesses on what I believe is to be one of the most important national security issues this committee and this Congress faces; namely, that is, whether or not to what extent the Anti-Ballistic Missile Treaty, or ABM Treaty, impedes our ability to defend our troops, our friends, and our allies, and ultimately the American people, from the burgeoning threat posed by ballistic missiles.

I need not remind my colleagues that the ABM Treaty is a highly controversial document here in the Congress. Many of my colleagues on this side of the aisle believe that the treaty has long outlived any usefulness it may have had, while treaty supporters, including the administration, contend it is the cornerstone of U.S. national security. One thing is for sure: We cannot nor do we seek to solve the answer to that vexing question here today, but certainly this will be a major topic of discussion and debate this year inside the beltway and throughout the free world.

Instead, our purpose this morning is more specific, more focused: How does the Department of Defense, which is charged by the President with assessing the U.S. missile defense program for their compliance under the treaty, view the obligations contained in the treaty? How is the treaty applied to U.S. national and theater missile defense, both national and theater missile defense systems? And, more pointedly, how has the treaty impacted our theater missile defense [TMD] and national missile defense [NMD] systems?

Before introducing our witnesses, allow me to make some general observations. The Congress, beginning three years ago, expressed a strong preference for assessing compliance of TMD systems by using a single standard known as the demonstrated standard—the premise being that a TMD system can't be assumed to have been given certain capabilities unless and until it has been tested or demonstrated in such a way. The administration fully embraced

the demonstrated standard in late 1993 in a proposal that we made to Russia for clarifying the line between NMD and TMD systems.

Yet, the President threatened to veto the defense authorization bill last year if a provision requiring DOD to adopt the demonstrated standard was not dropped. Now, either the administration supports and uses the demonstrated standard to assess compliance of U.S. TMD systems with the treaty, or it does not.

Evidence to date suggests that the administration uses many different standards, and that is part of the problem. Adopting a single standard—the demonstrated standard—is the obvious solution, and is one endorsed over and over again by this Congress in large bipartisan votes. A legislative executive consensus is there for the taking if the administration is willing to embrace it.

The practical effect of using a standard other than the demonstrated standard can be seen in the accusations that have been levelled against the Defense Department for allegedly dumbing down U.S. TMD systems, especially THAAD and Navy Upper Tier. Both of our outside witnesses this morning will testify that such dumbing down has occurred or will likely occur if the DOD does not adopt the demonstrated standard.

In fact, I am releasing today a letter I received last year from Under Secretary of Defense Paul Kaminski, which admits the Department is spending millions of dollars to ensure that the theater high-altitude area defense [THAAD] system cannot receive sensor data from space-based sensor systems such as the space and missile tracking system, or Brilliant Eyes. This, to me, represents prima facie evidence that the treaty is having a very real and decidedly negative impact on U.S. TMD programs. I would enjoy hearing from our witnesses this morning on whether the treaty actually requires us to take this step.

Perhaps General O'Neill can confirm that the practical effect of this decision is to reduce almost by half the capabilities of THAAD against medium-range missile threats such as the No Dong, which is now being deployed by North Korea.

Similar concerns have been raised about whether the Navy, because of concerns about compliance, has designed the Navy Upper Tier such that it will not be capable of fully exploiting queuing data from external sensor sources such as SMTS, thereby allowing it to perform midcourse intercepts. If this is the case, then this would represent an example of how the treaty's chilling effect has resulted in reduced capabilities of U.S. TMD systems.

Finally, allow me to say a few words about the negotiations under way in the Standing Consultative Commission in Geneva. I was privileged to have visited Geneva this past Friday for discussions with the U.S. negotiating team. I also participated in a lengthy formal negotiating session with the two top Russian negotiators as well as the representative of the Government of Belarus. I will soon be releasing a trip report, but let me raise three issues associated with these talks.

First, despite administration assurances that Russia and the United States have agreed to protect faster TMD systems such as Navy Upper Tier, there is no such agreement. In fact, the lead Russian negotiator, Mr. Koltunov, explicitly and forcefully rejected this

contention. If you are a supporter of Navy Upper Tier, as I am, then this is very much a cause for concern.

More broadly, however, I see no compelling reason for being in these negotiations in the first place. The only reason I was given during my visit was that Russia had linked ratification of START II with an agreement on TMD and ABM Treaty succession issues. But such linkage is decidedly not in our interest and should be resisted, not encouraged. And, frankly, I fail to see the logic of the administration raising this issue in the context of the ABM while ignoring the Russian's repeated statements about linking START II with expansion of North Atlantic Treaty Organization [NATO], which was also raised at the session last Friday.

Second, the United States is pressing to open up the treaty to as many as 12 additional signatory countries, former Soviet Republics. This will make it much more difficult, if not impossible, to amend the treaty in the future, say, to permit deployment of an effective NMD system. I suspect this is precisely why the administration has pushed the idea.

What was interesting to me, in a very frank question I asked of the lead Russian negotiator as to why they want to have the treaty extended to other successor states, he looked me squarely in the eye and he said to me, Mr. Chairman, I would suggest you ask that question of the person sitting alongside of you, who happened to be Stanley Riveles, our chief negotiator. He said that issue has never been raised with us, never been raised with the Russian negotiating team in terms of adding on additional signatory countries to the ABM Treaty. That, to me, is extremely disturbing. In my view, the multilateralization agreement being pursued is in some ways even more pernicious than the agreed statement on demarcation.

Third, and finally, I came away from the trip absolutely convinced of the need for more and better oversight of these and related negotiations. I strongly urge my colleagues on both sides and in both bodies to visit the site of those talks and to meet with the United States and Russian negotiators.

Now, I have met with Mr. Riveles in my office on several occasions over the past year, but it needs to be with the Russian side as well. And to my colleagues, I encourage you to take advantage of the opportunity there. In fact, I spoke with the Speaker yesterday and have asked him and have received his strong interest in reconvening the House's legitimate efforts to have a role in the oversight of these types of negotiations. In effect, to reinstate the appropriate House oversight task force for the ABM discussions.

These agreements they are drafting clearly hold the potential of significantly affecting our ability to deploy effective theater and national missile defenses, and thus we should make it our business to understand the terms and implications of such accords.

Before turning to our witnesses, I am pleased to recognize the distinguished ranking minority member of the subcommittee, Mr. Spratt, from South Carolina.

[The prepared statement of Mr. Weldon follows:]

OPENING STATEMENT OF REP. CURT WELDON
CHAIRMAN, MILITARY R&D SUBCOMMITTEE
HEARING ON IMPACT OF THE ABM TREATY ON
U.S. MISSILE DEFENSE PROGRAMS
MARCH 21, 1996

The Subcommittee on Military Research and Development meets today to receive testimony from respected outside and Department of Defense witnesses on what I believe is one of the most important national security issues this Committee and this Congress faces -- namely, whether or to what extent the Anti-Ballistic Missile (ABM) Treaty impedes our ability to defend our troops, our friends and allies, and ultimately the American people from the burgeoning threat posed by ballistic missiles.

I need not remind my colleagues that the ABM Treaty is a highly controversial document here in the Congress. Many of my colleagues on this side of the aisle believe that the Treaty has long outlived any usefulness it may have had, while Treaty supporters, including the Clinton Administration, contend it is the cornerstone of U.S. national security. One thing is for sure: We cannot, nor will we seek to solve the answer to that vexing question here today.

Instead, our purpose this morning is more specific, more focused: How does the Department of Defense, which is charged by the President with assessing U.S. missile defense program for their compliance under the Treaty, view the obligations contained in the Treaty? How is the Treaty applied to U.S. National and Theater Missile Defense (NMD and TMD) systems? And, more pointedly, how has the Treaty impacted our TMD and NMD systems?

Before introducing our witnesses, allow me to make some general observations. The Congress, beginning three years ago, expressed a strong preference for assessing compliance of TMD systems by using a single standard known as the "demonstrated standard" -- the premise being that a TMD system can't be assumed to have been given certain capabilities unless and until it has been tested (or "demonstrated") in such a way. The Administration fully embraced the demonstrated standard in late 1993 in a

proposal we made to Russia for clarifying the line between NMD and TMD systems.

Yet, the President threatened to veto the Defense Authorization bill last year if a provision requiring DoD to adopt the demonstrated standard was not dropped. Now, either the Administration supports and uses the demonstrated standard to assess compliance of U.S. TMD systems with the Treaty, or it does not. Evidence to date suggests that the Administration uses many different standards, and that's part of the problem. *Adopting a single standard -- the demonstrated standard -- is the obvious solution, and is one endorsed over and over again by the Congress. A legislative-executive consenses is there for the taking if the Administration is willing to embrace it.*

The practical effect of using a standard other than the demonstrated standard can be seen in the accusations that have been levelled against the Defense Department for allegedly "dumbing down" U.S. TMD systems, especially THAAD and Navy Upper Tier. Both of our outside witnesses this morning will testify that such dumbing down has occurred or will likely occur if the DoD does not adopt the demonstrated standard.

In fact, I am releasing today a letter I received late last year from Under Secretary of Defense Paul Kaminski, which admits that the Department is spending millions of dollars to ensure that the THAAD system cannot receive sensor data from space-based sensor systems such as the Space and Missile Tracking System (or "Brilliant Eyes"). This to me represents *prima facie* evidence that the Treaty is having a very real and decidedly negative impact on U.S. TMD programs. I'd enjoy hearing from our witnesses this morning on whether the Treaty actually requires us to take this step. Perhaps General O'Neill can confirm that the practical effect of this decision is to reduce almost by half the capabilities of THAAD against medium-range missile threats such as the No Dong, which is now being deployed by North Korea.

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If this is the case, then this would represent an example of how the Treaty's "chilling effect" has resulted in reduced capabilities of U.S. TMD systems.

Finally, allow me to say a few words about the negotiations underway in the Standing Consultative Commission (SCC) in Geneva. I was privileged to have visited Geneva last Friday for discussions with the U.S. negotiating team. I also participated in a lengthy, formal negotiating session with the top two Russian negotiators as well as the representative of the Government of Belarus. I will soon be releasing a trip report, but let me raise three issues associated with these talks.

First, despite Administration assurances that Russia and the U.S. have agreed to protect "faster TMD systems" such as Navy Upper Tier, there is no such agreement. In fact, the Russian negotiator explicitly and forcefully rejected this contention. If you are a supporter of Navy Upper Tier, as I am, then this is very much cause for concern.

More broadly, however, I see no compelling reason for being in these negotiations in the first place. The only reason I was given during my visit was that Russia has linked ratification of START-II with an agreement on TMD and ABM Treaty succession issues. But such linkage is decidely not in our interest, and should be resisted not encouraged.

Second, the U.S. is pressing to open up the Treaty to as many as twelve additional signatories. This will make it much more difficult, if not impossible, to amend the Treaty in the future, say, to permit deployment of an effective NMD system. I suspect this is precisely why the Administration has pushed this idea. In my view, the multilateralization agreement being pursued is in some ways even more pernicious than the Agreed Statement on Demarcation.

Third and finally, I came away from the trip absolutely convinced of the need for more and better oversight of these and related negotiations. I strongly urge my colleagues to visit the site of those talks and to meet with the U.S. and Russian negotiators. The agreements they are drafting clearly hold the potential of significantly affecting our ability to deploy effective theater and national missile defenses, and thus we should make it "our business" to understand the terms and implications of such accords.

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3010

ACQUISITION AND
TECHNOLOGY

SEP 27 1995

Honorable Curt Weldon
House of Representatives
Washington, DC 20515

Dear Congressman Weldon:

The Secretary has asked that I reply to your letter of September 22, 1995, concerning ABM Treaty issues currently under consideration in the House-Senate conference on the FY96 Defense Authorization. This Administration is committed to deploying effective TMD and has made doing so the highest priority of our ballistic missile defense program. The ABM Treaty does not limit theater missile defense systems per se; however, it does require that non-ABM systems or components, including TMD, not be given capabilities to counter strategic ballistic missiles and not be tested in an ABM mode. The Department of Defense determines the compliance of theater missile defense systems with those requirements on a case-by-case basis. We have reported in detail to the Congress our compliance judgments regarding PAC-3, Navy Lower Tier, Navy Upper Tier, and THAAD.

For now, and throughout FY96, ABM Treaty compliance imposes no constraints on the planned capabilities of the TMD systems we are pursuing. The Department has concluded -- and reported to Congress -- that PAC-3, Navy Lower Tier, Navy Upper Tier, and the THAAD dem/val flight test program as currently designed and planned, will be compliant with the ABM Treaty. Although THAAD cueing capability has been deferred pending certification of the THAAD User Operational Evaluation System, that certification is not required before October 1996 to ensure full cueing capability on schedule. Deferral of THAAD cueing capability has resulted in only a relatively minor cost of $2.8 million. We do not anticipate additional Treaty issues during FY96.

Therefore, as a practical matter, imposition of a standard for assessing compliance that would consider only demonstrated capability, as the House bill would attempt to do, is not necessary during FY96 to allow our TMD programs to proceed as planned. Moreover, as the Secretary of Defense has made clear, we believe that an attempt to impose such a standard legislatively would be counterproductive and would raise significant international legal issues as well as fundamental constitutional issues. We believe the compromise worked out by the Senate is more likely to achieve objectives shared by Congress and the Administration. The Secretary recently stated that if the final Authorization bill were not improved along the lines of the Senate version, this issue would likely cause him to recommend a Presidential veto.

I would welcome the opportunity to discuss this matter further. Please have your staff contact my office, and Assistant Secretary Ashton Carter and I would be happy to meet with you.

Sincerely,

Paul G. Kaminski

Paul G. Kaminski

STATEMENT OF HON. JOHN M. SPRATT, JR., A REPRESENTATIVE FROM SOUTH CAROLINA, RANKING MINORITY MEMBER, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. SPRATT. Thank you, very much, Mr. Chairman, and let me also welcome our witnesses. Dr. Graybeal and Dr. Cambone, we very much appreciate your taking the time to prepare testimony and to appear here today.

I believe in ballistic missile defense, and I especially believe in theater missile defense, because our troops in the field and expeditionary forces will be faced with a clear and present danger now and in the near future from increasingly threatening tactical missiles. So we should move on with TMD, theater missile defense, as our first priority.

I also believe in national missile defense, but today Russia and China are the only two nations which constitute a clear and present danger; nations about whom we must worry. And our nuclear arsenal for all of the cold war has and will continue to serve as an effective deterrent against these two nations. I am not suggesting that we should not complement it with defensive measures, but let us not diminish the effectiveness of deterrence, particularly at the height of the cold war.

I don't dismiss the emerging rogue nation threat, but I do consider the administration's 3-plus-3 program a prudent approach. It wouldn't necessarily be the one I adopted, but I don't think it is a cul-de-sac. I think it leads us on an evolutionary path towards a logical decision of whether to deploy or not to deploy in a near-term period of just 3 years.

I don't think we should ignore the rogue nation threat even from an improbable country like North Korea—improbable in the sense that it is hard for me to imagine the circumstances, even if they had a missile, that they would dare to use one against us—but I do not think we should inflate that threat.

We have heard over the past few weeks we need to plus up the investment accounts, R&D and procurement, and how the readiness accounts are now on the razor's edge. If we are to redress a looming modernization problem, maintain a robust level of readiness, then we have to martial our resources wisely over the next several years in making a defense budget. We have to bear in mind that the budget proposal adopted by Congress last year added less than 1 percent to the Clinton budget baseline, $18.4 billion over the 1996–2002 time period; $18 billion over 7 years.

The Clinton baseline for defense is actually higher in the out years, also, than the congressional proposal, which is realistic when you consider that in the out years very expensive programs will be coming to fruition, like the Comanche, the V–22, the F–22, the JAST, PAC–3, Navy Lower Tier, and new attack submarines. All this will come to fruition and will have to be funded in the out years, and, therefore, it is realistic that the Clinton budget actually exceeds the congressional baseline in the years 2001 and 2002.

Both theater missile defense and national missile defense are important, but the defense budget, to the extent it is a zero sum gain, we have to remind ourselves every dollar we spend on BMD, ballistic missile defense, may be a dollar less for trucks and ammo, and

tents and planes, and ships and housing, and the quality of life initiatives for our troops. So when we talk about BMD, we must be realistic about the funding available not only for fiscal 1997—there may be a plus up this year—but in the out years through 1997, 1998, on into 2002 when these programs that we would plus up today would be brought to completion.

We have to fund our legitimate needs, but we cannot afford to fund programs that are not linked to a legitimate threat or that we cannot see through to completion. We also need to be aware that the hardware that General O'Neill is developing is designed to intercept missiles in the last minutes of their flight.

Missile defense includes more than just missile interceptors. It includes maintaining a nuclear deterrent; it includes export controls on missile technology and fissile materials; it includes cooperative threat reduction, Nunn-Lugar; nuclear material control and accounting; and it includes certainly Strategic Arms Reduction Treaty [START] I, its implementation; and START II, its ratification and implementation.

I think the fate of START I implementation and START II ratification is closely associated with the ABM Treaty, at least for now. Not forever, but at least for now. START II will eliminate some 57,000 Russian warheads and bring both the United States and Russian arsenals down to about 3,500 warheads apiece. We cannot build a missile defense system that would so effectively eliminate so many Russian warheads.

START II is critical to our national security, but ratification at this point is shaky at best. And any signal by Congress we may be breaking out of the ABM Treaty in the near term could risk the ratification of START II. Now is not the time to send such a signal. I am not whetted to the treaty, I am not against considering amendments of it in the future, I just don't think it is necessary to push the issue right now.

I have read the testimony of Dr. Graybeal, and I fully agree with his assessment that the treaty is a living document. Jim Woolsey last week said we can live within the terms for the time being. So did Richard Perle. I believe we should keep the treaty until it serves our interests no longer, with START II implementation complete, START II ratification assured and in the process of being completed, and then we can turn to the issue of ABM Treaty modification.

I would like to ask our witnesses and all my other colleagues to keep in mind that START II will save us the cost of maintaining a large nuclear arsenal. If we don't have START I implementation, if we don't have START II ratification, followed by implementation, then we must face the question in this country, in the Defense Department, of whether or not to maintain our existing nuclear arsenal at its existing levels, which will be extremely expensive to do and more than we have programmed in the budget before us. And if we have to do so, then those dollars, once again coming out of a sort of zero sum budget, are bound to displace other priorities. It may be conventional defense or it may, indeed, be ballistic missile defense.

So all these issues are before us today and we welcome our witnesses' reflections and thoughts on the agenda before us.

Thank you very much, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Spratt.

I will accept any opening statements other members of the subcommittee may have. We anticipate because of the confidentiality of the testimony of our second panel of witnesses that we will have to close the session to make it a classified session, and I would ask those staff members who may be here representing Members who are not present to let them know that they will have an opportunity to receive up-to-date, current information relative to this issue in a closed setting.

I say that because I am reminded that Members of both parties in recent weeks have said there is not enough access to classified information. Well, you have that today. So that opportunity will occur as soon as we are done our first panel here, and I would ask you to let the people that you work for know that we would invite them to attend that portion of our setting.

And as soon as I receive a quorum we will have such a vote to close the second half of our session. I would rather keep it in the open, but the testimony itself is closed so we will have to close the session.

We are, indeed, fortunate to have two distinguished witnesses to start off the session today, perhaps as well equipped as anyone in America to assess the ABM Treaty and the issues before us. Dr. Sidney Graybeal, a former ABM Treaty negotiator, well respected, well-known, and someone that we certainly hold in very high esteem in terms of his credibility and understanding of the treaty itself and the nuances of interpreting the treaty.

We are also pleased to have Dr. Stephen Cambone, senior fellow of the political-military studies program at the Center for Strategic and International Studies, also well versed and well written and very well respected on the issue of the ABM Treaty, not just in this country but throughout the world.

So it is appropriate that these two gentlemen provide their perspectives on the issues at hand, and we would enter their written statements into the record without objection and allow you as much time as you would like to present your oral statements and then to take questions from the subcommittee.

Dr. Graybeal, we will begin with you.

STATEMENT OF SIDNEY N. GRAYBEAL, FORMER ABM TREATY NEGOTIATOR

Mr. GRAYBEAL. Thank you, Mr. Chairman. It is indeed an honor to testify before this subcommittee on the topic of ballistic missile defenses and the ABM Treaty.

As you noted, Mr. Chairman, I did serve on the negotiating team for the ABM Treaty. I was also appointed the first U.S. Commissioner on the Standing Consultative Commission, a position I have had for 4 years. I have remained closely involved in these activities, and I have been active in various capacities within and outside the Government on ABM Treaty issues.

My statement this morning is based upon work my colleague, Dr. Patricia McFate, and I have been performing in various capacities; however, the views that I will be presenting should not be attributed to any governmental agency or any private organization.

Mr. Chairman, I would request that four papers that we have prepared, which are directly related to your considerations, be entered into the record.

Mr. WELDON. Without objection.

Mr. GRAYBEAL. Thank you.

This morning I want to make some brief comments on four issues which apparently are of concern to this subcommittee: Key ABM Treaty background considerations, which are often overlooked and neglected, which are essential to consider any ABM Treaty compliance issues; second, TMD and the ABM Treaty; third, NMD and the ABM Treaty; then some concluding remarks on achieving fully operational effective BMD systems, both TMD and NMD, while maintaining the ABM Treaty.

On the background consideration, I think it is important to remember the ABM Treaty is of unlimited duration, but it was intended to be a living document. It was intended to be amended, modified and clarified, depending on changes in the threat and changes in technology developments.

I would remind you it has been amended. It was amended in 1974 by a protocol which reduced the sites from two to one. It has been clarified by a 1978 agreed statement which clarified testing of the ABM mode and other areas. And when I talk to my Russian colleagues and they tie this to the START II agreement that the chairman and Mr. Spratt mentioned, they frequently say we must maintain the treaty as it was negotiated. Well, I remind them it was amended already in 1974, it was clarified in 1978, and both of these are legally binding documents and, therefore, both sides should be looking at what clarification amendments are necessary to accommodate both the changes in the threat and the changes in the technologies.

The other point that is often overlooked, which is a subset of some of the comments you made, Mr. Chairman, that verification of this ABM Treaty is by national technical means alone. This was a key consideration during the negotiations and it must be remembered when considering compliance issues. Judgments on compliance should be based on demonstrated capabilities which are verifiable by national technical means, and I will come back to this later.

I would like to also emphasize the treaty places no limits on the quantity or quality of data that can be used from external sensors that go into battle management centers. There are no limits on antitactical ballistic missiles [ATBM's] necessary for TMD per se. However, article VI(a) of the treaty prohibits giving non-ABM components, "capabilities to counter strategic ballistic missiles and prohibits testing them in an ABM mode."

This has been a key article in the TMD demarcation considerations. And the U.S. consciously avoided quantifying testing in an ABM mode during negotiations, and it is important to remember this.

We considered within the Government specific quantitative limits that would define what constituted test in the ABM mode. They were rejected for three precise and specific reasons. First, it would be difficult to verify by national technical means, particularly until the 1972 era; second, we wanted flexibility in our ability to chal-

lenge Soviet activities in upgrading their extensive SAM systems; and, third, we wanted flexibility in our own programs.

So it should not be stated the treaty is negligent. It didn't put quantitative limits. This was intentional, and I think it is tied with verification of national technical means, and we should remember that when we consider some of these issues.

The treaty does not prohibit any defense of the national territory. It limits extensive effective ABM defenses. And often, when we are talking to various people, the first thing that comes up, they say you cannot defend all of the U.S. Article I says no defense of the territory. Well, there is a clause in that article I that also says except as permitted in article III, which was the two sites originally, then reduced to one.

The other point that is important to remember is there are no limits on the range or velocity of ABM interceptors. This again was a conscious decision on the part of the U.S. negotiating team for verification and other reasons. So you can have an ABM interceptor stationed in Grand Forks that can go 6,000 kilometers that is not limited by the ABM Treaty, contrary to what many people will state. The treaty permits NMD systems capable of handling limited ballistic missile threats. It does not prohibit all defenses of the United States.

Turning to the TMD and the ABM Treaty. In my view, the threat is real and it is recognized. The testimony of James Woolsey on March 14 clearly set forth the theater ballistic missile threat and the emerging threat to the United States. I fully agree with his assessments. I am also concerned about the proliferation of space launch vehicles which can readily be converted into ICBM's, which were not emphasized in his testimony.

Dr. McFate and I have done work looking at the proliferation of space launch vehicles. And as members of this committee know, if you can put 1,000 pounds into low Earth orbit, you can deliver 1,000 pounds in intercontinental range. So they can be converted into ICBM's. The ABM Treaty is verified by national technical means alone. Therefore, the basis for determining compliance must be demonstrated capabilities, not inherent capabilities derived from unverifiable computer simulations.

The U.S. position regarding target missile velocity and range, as set forth by Dr. Robert Bell in the Standing Consultative Commission in November 1993, and referred to by the chairman, was a sound position based upon demonstrated capabilities.

Now, the THAAD compliance finding in 1994 was based upon computer simulations. These simulations were used to determine that the THAAD system could possess, quote, a significant intercept probability against some strategic reentry vehicles. This would, thus, make the THAAD an ABM system if you put the software inside the system and used data from external sensors, neither of which is planned in the dem/val program.

So this finding is not interfering with THAAD over the next few months, but in the long term this finding could impede upon the capabilities. This finding, in my view, was a mistake and until it is rescinded or replaced, it will constrain the administration's ability to accomplish the full potential of the THAAD system after the dem/val program is completed.

In my view, placing precise limits on interceptor velocities, or attempting to place them in the negotiation is also a mistake. In addition to constraining the capabilities of future TMD systems, it could also pose verification problems in determining these precise velocities of the interceptor missiles. And on this you would have to go into classified session to get the capabilities and limitations of our intelligence.

The U.S. should avoid inhibiting the growth of potential TMD systems required for addressing the future ballistic missile threats. I recognize that the current threats are primarily ballistic missiles under a thousand kilometers, but I think both Russia and the United States recognize in the SCC that the emerging theater ballistic missile threat would constitute missiles up to a 3,500 mile range. So it is my understanding they did not differ with our target velocity of 5 kilometers and 3,500. The difference involves interceptor velocities and a series of other items.

As I noted, THAAD's growth could be limited by a question of compliance finding. The Navy Upper Tier, and also known as the theater-wide systems growth, should not be limited by the demarcation agreement currently under negotiation, which may place limits on interceptor velocities which, in the long term, could also impinge upon the potential of this program.

Data from external sensors will be required to achieve the full potential of TMD systems. And as I mention in my opening remarks, the treaty places no limits on the quantity and quality of data from external sensors or space-based sensors that can be utilized in both ABM systems and TMD systems. The United States should not permit the demarcation negotiations to result in turning the ABM Treaty into a TMD treaty.

Turning now to national missile defense and the ABM Treaty. In our view a real threat is emerging, but it is questionable whether or not the administration really recognizes the potential threat that could emerge, and here I refer back to space-launch vehicles and to a lot of the uncertainties. Estimates are important, but the years I spent in CIA, I learned that you have to put a spread in an estimate. So I don't like estimates that give a precise number and a precise time because there are always uncertainties built into these.

In our view, the United States requires an operationally effective NMD system for all 50 States in order to counter the emerging threat. The key question is one of timing. When will the threat appear, and when can we have effective defenses deployed? This point was made very well by General O'Neill at a breakfast meeting this morning. There is a timing, not whether or not we need this insurance policy.

The Army and the Air Force have proposed single site NMD deployments, which they believe could provide defense against limited ballistic missile attacks. Both require a new high velocity, 7 to 8 kilometers per second kinetic kill vehicle. Both require data from external sensors to be fully effective. Neither is likely to provide a fully operationally effective defense of Alaska and Hawaii from ICBMs; and neither will provide any effective defense against future SLBM threats to these two States.

And I endorse Jim Woolsey's comments that when Alaska and Hawaii came into the United States they expected the same degree of protection that the other 48 States, and I also would remind you that I think General O'Neill testified recently that the North Korean Taepo Dong 2 had a range of, estimated range of around 6,000 kilometers. And I think a map would show you that 6,000 kilometers will be able to hit these two States.

A fully operationally effective NMD system for all 50 States will, in our view, require a three or five site deployment. Each site would have no more than 100 ABM interceptors and ABM launchers. So you are constraining the extent of this capability. Such a deployment would be completely consistent with the basic purpose and intent of the ABM Treaty and it would not undermine strategic stability nor would it generate an arms race.

The strategic force levels in Russia and in the United States after START II is fully implemented will be essentially the same level as they were in 1972 when the ABM Treaty was negotiated. Now, if Secretary of Defense Perry is hedging against a resurgent Russia, and we are worried about that, why is not the rationale for the ABM Treaty of 1972, which was crisis strategic stability and arms race stability, still applicable in 1996; if we are worried about a resurgent Russia, whose strategic forces even after START II will be essentially that level? So I am opposed to throwing the ABM Treaty in the garbage can at this point in time.

Such a multiple site deployment would require an amendment to the ABM Treaty. In my opinion, such an amendment would not be difficult to achieve. Russia needs the ABM Treaty in order to maintain its deterrence and in order to avoid a costly arms race with the United States.

In my concluding remarks I want to emphasize that ballistic missile defense systems and the ABM Treaty still provide a compatible marriage. The real theater ballistic missile threats and the emerging strategic ballistic missile capabilities and threats from rogue countries require both effective TMD and a fully effective NMD system. Such systems can and should be acquired. This can be accomplished in a manner completely consistent with the purpose and intent of the ABM Treaty.

General O'Neill, at breakfast this morning, endorsed and advocated the 3-plus-3 NMD program in which 3 years will be devoted to, and I emphasize his word, robust R&D. I would like to build on that and suggest advocating, and I do advocate a robust discussion in the SCC and other senior forums during these 3 years when the R&D is going on in which the U.S. strongly and firmly explains the rationale for our R&D program, the rationale for our ballistic missile program, the rationale for our TMD program, and the rational for our insurance policy in NMD program.

In my view, by informing the Russians of this threat—and we would inform the Russians of our view of the threat and we would assert that a multiple-site NMD system is not inconsistent with the purpose and intent of the ABM Treaty and we consider this necessary for an insurance policy. And I would remind them this is a living document, has been amended, and it may be necessary to amend and clarify for the future.

The United States, in my view, should insist on the right to develop and deploy effective TMD and effective NMD systems to meet our emerging—our current and emerging national security requirements. The United States and Russia should recognize that it is possible to have both effective ballistic missile defenses and a viable ABM Treaty. We should not, and in my view must not, force a choice between the two. Regardless of which one wins, in my view the United States loses.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Dr. Graybeal.

[The following information was submitted for the record:]

TALKING POINTS FOR TESTIMONY BEFORE
THE NATIONAL SECURITY COMMITTEE
RESEARCH & DEVELOPMENT AND MILITARY
PROCUREMENT SUBCOMMITTEES

21 March 1996

Sidney N. Graybeal

Mr. Chairman, it is an honor to testify before the Subcommittees on the topic of Ballistic Missile Defenses (BMD) and the ABM Treaty.

I served as Alternate Executive Officer throughout the SALT-I negotiations and was the first U. S. Commissioner of the Standing Consultative Commission, the body responsible for implementing the ABM Treaty. I have remained closely involved in activities related to the Treaty, including the issues before the Subcommittees today. My statement this morning is based on work which my colleague, Dr. Patricia McFate, and I have been performing in various capacities. The view that I will be presenting should not be attributed to any governmental agency or private organization.

I would like to request that four brief papers which we have prepared which are directly related to your considerations be entered into the record: 1) "NMD System Architectures and the ABM Treaty", 2) "Testimony before the Senate Armed Services Committee on Effective Theater Missile Defense and the ABM Treaty (May 1995), 3) "A Double Verification Standard for the ABM Treaty: Creating Problems where None Should Exist", and 4) "More ABM Treaty Compliance Issues: Now It's Space-Based Sensors."

This morning, I want to make some brief comments on four issues which apparently are of concern to the Subcommittees: 1) Key ABM Treaty background considerations; 2) TMD and the ABM Treaty; 3) NMD and the ABM Treaty, and 4) Achieving operationally-effective BMD systems while maintaining the ABM Treaty.

Background Considerations

- The ABM Treaty is of unlimited duration, but it was intended to be a "living document."
- Verification of the Treaty is by NTM alone.
- There are no limits on the quantity or quality of data from external sensors.
- There are no limits on ATBMs per se, however, Article VI (a) of the Treaty prohibits giving non-ABM components "capabilities to counter strategic ballistic

missiles" and prohibits testing them "in an ABM mode."

- The Treaty does not prohibit any defense of the national territory, it limits extensive, effective ABM defenses.

- There are no limits on the range or velocity of ABM interceptors.

- The Treaty permits NMD systems capable of handling limited ballistic missile threats.

TMD and the ABM Treaty

- The threat is real and recognized. The testimony of James Woolsey on 14 March 1996 clearly set forth the theater ballistic missile threat and the emerging threat to the United States. I fully agree with his assessments.

- The ABM Treaty is verified by national technical means alone. Therefore, the basis for determining compliance must be "demonstrated" capabilities, not "inherent" capabilities derived from unverifiable computer simulations.

  - The U S. position regarding target missile velocity and range, as set forth by Dr Robert Bell in the Standing Consultative Commission in November 1993, was a sound position, based upon demonstrated capabilities.

  - The THAAD compliance finding in 1994 was based on computer simulations, these simulations were used to determine that the THAAD system could possess a 'significant' intercept probability against some strategic reentry vehicles. This finding was a mistake, and until it is rescinded or replaced, it will constrain THAAD's potential capabilities.

  - In my view, placing precise limits on interceptor velocities is also a mistake In addition to constraining the capabilities of future TMD systems, it could also pose verification problems.

- The United States should avoid inhibiting the growth potential of TMD systems required for addressing future theater ballistic missile threats

  - As I have noted, THAAD's growth could be limited by a questionable compliance finding

  - The Navy Upper Tier/Theater Wide system's growth should not be limited by the "demarcation" agreement currently under negotiation

- Data from external sensors will be required to achieve the full potential of TMD systems.

- The United States should not permit the "demarcation" negotiations to result in turning the ABM Treaty into a "TMD Treaty."

NMD and the ABM Treaty

- A real threat is emerging, but apparently it is not being acknowledged by the Clinton Administration I concur with Mr. Woolsey's comments on the recently-completed N.I E.

- The United States requires an operationally-effective NMD system for all fifty states in order to counter the emerging threat.

- The Army and the Air Force have proposed single site NMD deployments which they believe could provide defense against limited ballistic missile attacks

  - Both require a new high velocity (7-8 km/sec) kinetic kill vehicle.

  - Both require data from external sensors to be effective

  - Neither is likely to provide operationally-effective defense of Alaska and Hawaii from ICBMs, neither will provide effective defense against future SLBM threats

  - The Army system has only minor ABM Treaty problems

  - The Air Force system raises both ABM Treaty and START Treaty issues

- A fully operationally-effective NMD system for all fifty states will require a three- or five-site deployment Each site would have no more than 100 ABM interceptors and ABM launchers

  - Such a deployment would be completely consistent with the basic purpose and intent of the ABM Treaty It would not undermine strategic stability, nor would it generate an arms race.

  - Such a multiple site deployment would require an amendment to the Treaty, in my opinion, such an amendment should not be difficult to achieve Russia needs the Treaty in order to maintain its deterrence and to avoid a costly arms race with the United States

BMD Systems and the ABM Treaty: A Compatible Marriage

- The real theater ballistic missile threats and the emerging strategic ballistic missile capabilities and threats from rogue countries require both effective TMD and NMD systems.
- Such systems can and should be acquired; this can be accomplished in a manner completely consistent with the purpose and intent of the Treaty.
- The United States needs a firm negotiating approach with the Russians in both the TMD and NMD areas The Russian Federation needs to preserve the ABM Treaty; Russia should be willing to keep the Treaty a "living document" by cooperating in the clarifications, modifications, and amendments necessary to permit both parties to accommodate to the changing threats and advancing technologies
- The United States should insist on its right to develop and deploy effective TMD and NMD systems to meet its national security requirements.
- The United States and Russia should recognize that it is possible to have both an effective BMD and a viable ABM Treaty. We should not force a choice between the two; regardless of which one wins, the United States loses

Mr. WELDON. Dr. Cambone.

STATEMENT OF STEPHEN A. CAMBONE, SENIOR FELLOW, POLITICAL-MILITARY STUDIES PROGRAM, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Mr. CAMBONE. Thank you, Mr. Chairman.

I appreciate this opportunity to appear before the committee. I was asked to address the impact of the treaty, particularly on U.S. TMD programs. In my prepared statement I made some remarks as well on NMD, but I will confine myself here to TMD.

In my view, the impact of the treaty today on our TMD programs is severe, and if the terms of the agreement reportedly being sought with Russia to clarify the impact of the treaty on TMD goes forward, I believe that the future impact will be even more severe.

In my view, that impact both now and in the future is absolutely unnecessary and, moreover, I believe the negotiations currently under way with the Russians to clarify the distinction between ABM and non-ABM systems is unwise and unwarranted.

The treaty does not prohibit research related to permitted ABM systems, but it is the case that its restrictions become more confining the closer one comes to the testing or deployment of systems or components with actual ABM capability. The drafters of the treaty understood this fact and so they have made it rather difficult to deploy ABM systems. They understood as well that non-ABM systems, things like surface-to-air missiles, could possess ABM capability and, hence, they wrote into the treaty article VI(a), which reads as follows: That the sides agree not to give to non-ABM members launchers or radar capabilities to counter strategic ballistic missiles or their incoming flight trajectory and not to test them in an ABM mode.

Like other provisions of the ABM Treaty, this one has had an impact of increasing proportion as we have moved closer and closer to deployment. It is now being felt with respect to the two principal TMD programs of interest to the chairman and mentioned this morning; namely, the Army's THAAD program and the Navy's Upper Tier system.

These two systems are different in very important respects, but the ABM Treaty or the way the treaty is being applied is affecting the potential of these systems in a very similar way, that is, the administration has concluded in both cases that it cannot permit these systems to make use of data from sensors other than those included as an integral part of the system itself for the purposes of queuing and/or tracking ballistic missiles themselves or their reentry vehicles in light of the provisions of article VI(a).

What it means for THAAD, as the chairman mentioned this morning, is that it cannot use the space-based sensors. It is also true that the Navy Upper Tier system may not use space-based sensors or any other sensors for the purposes of conducting intercepts. The practical implication for THAAD is it means that against a missile with a range of approximately 1,000 kilometers, its area that it can cover, that is to protect, is cut in half. For a Navy Upper Tier system, what it means is that unless that Navy Upper Tier system is nearby the launch point of the missile, so that it may use its own radar for the purposes of tracking the mis-

sile as it ascends, it cannot make an intercept of an RV coming down on its targets. In short, the system is only half useful.

In my view, it is unnecessary that we have these kinds of restrictions on TMD systems, and let me address first my reasons for saying so and then turn to the agreement that is being sought. The potential for the ABM Treaty to affect TMD programs was recognized and addressed by President Bush's Secretary of Defense, Dick Cheney, and at the end of the Bush administration he addressed a letter to the Secretary of State outlining his approach to a compliance standard for TMD.

He concluded that U.S. obligations under the treaty were sufficiently clear that a unilateral compliance standard was possible for theater missile defense that would have permitted THAAD and the Navy's Upper Tier system to be fully developed. He admitted that U.S. obligations under article VI(a) did impose limits on what could be done in the TMD Program but he was of the opinion that those obligations did not prevent the full development of either THAAD or the Navy Upper Tier system.

Congress, for its part, provided its version of what came to be known as the demonstrated standard in findings contained in the fiscal year 1994 Defense Authorization Act. There it stated that the treaty does not intend to and does not apply to TMD systems that are designed to counter modern theater ballistic missiles regardless of the capability of those systems unless they are tested against or have demonstrated capabilities to counter modern strategic ballistic missiles.

Now these findings by the Congress are, in my view, consistent with U.S. obligations under the treaty and in particular with those in article VI. I will recall for you again that the treaty limits ABM systems only and article VI(a) prohibits giving to non-ABM systems ABM capability or testing them in the ABM mode.

Now, Congress' finding is important because it is the case that within the ABM Treaty it turns out there are no definitions to the terms to give capability or of capabilities to counter. So while we are prohibited from either giving such capabilities or having capabilities to counter, there is no definition of those terms. There is an agreement between the sides which Dr. Graybeal made reference to, on what constitutes an actual test in the ABM mode, but there is no definition over what constitutes a strategic ballistic missile against which one may not test.

Findings of the Congress lend definitions to these terms because in the same fiscal year 1994 authorization act the Congress found the following with respect to ballistic missiles. They said some theater ballistic missiles presently being developed or deployed, such as the Chinese-made CSS–2, have capabilities equal to or greater than the capabilities of missiles that were determined to be strategic missiles more than 20 years ago under the SALT I agreement. Congress, therefore, is reminding us that the definition of a strategic ballistic missile for the purposes of SALT I included missile systems with ranges equivalent to the CSS–2, with a velocity which is calculated at roughly 4.7 kilometers per second, in a range of roughly 3,500 kilometers. That missile was the SS–N–6. The association of the N–6 with SALT I was critical, for SALT I was negotiated in parallel with the ABM Treaty, and its annexes contain

the contemporary understanding of the basis on which to define a modern strategic ballistic missile.

So Congress has left for us its conclusion that so long as the U.S. did not test the TMD component or system against a missile with a range or velocity in excess of the SS–N–6, it was not a test against a strategic ballistic missile. But having defined for us a strategic ballistic missile, we still have not quite gotten to the definition of what a capability to counter might be or what it means to have given that capability.

Congress chose to argue that it had to be demonstrated, that is an actual test had to take place against a missile flying faster than an SS–N–6 in order to have been considered to have been tested or to have capabilities to counter or to have been given capabilities. Now, is this position of Congress in the fiscal year 1994 authorization act consistent with our obligations? That seems to me is the question before this committee and one that needs to be decided.

In my view, it is for the following reasons. First, the treaty provides no definition of how to assess capability. The standards presently being used were unilaterally chosen by the United States. They were not negotiated with the Russians and we are free to change those standards if we choose.

Second, the notion of a demonstrated standard is not at variance with the so-called Foster Box. This refers to testimony on the ABM Treaty offered by Dr. Johnny Foster to the effect that in his personal opinion a system ought to be subject to a compliance review if it were tested against an object flying faster than 2 kilometers a second or higher than 40 kilometers in altitude.

But in suggesting that a system tested in such a way should be subjected to a review, he did not suggest that those were the standards by which compliance was to be decided. For, clearly, ever since that opinion was offered, the United States has, indeed, certified as compliant the tests against targets faster than 2 kilometers a second or higher than 40 kilometers in altitude.

But third, and most importantly, and here I am reinforcing a point made by my colleague here on the panel, a demonstrated standard consistent with the monitoring and verification provisions of the ABM Treaty. I will remind the committee that Gerard Smith, for example, testifying during the ABM Treaty ratification hearing, said, quote, we tailored the limitations, in the treaty that is, to fit the capabilities of national technical means of verification.

Therefore, it seems to me on the evidence, Mr. Chairman, that it is appropriate for us to adopt a demonstrated standard because it is clear that with respect to the monitoring and verification of the provisions of these treaties, if it cannot be seen and it cannot be heard, it cannot be demonstrated to have been a violation.

Now, let me turn quickly to the issue of why I believe the agreement being sought by the administration is unwise.

It was Secretary Cheney's hope his recommendation would become the basis for Clinton administration policy. The position of the then-Democratic Congress on the matter certainly lent weight to the proposition that should the new administration have been of a mind to do so, the legislative and executive consensus was available to clarify our obligations under article VI(a) of the treaty and

that we could have done it unilaterally. But the administration rejected this approach.

Rather than viewing the issue as one of setting compliance standards for the United States unilaterally, in light of our known obligations under the ABM Treaty, the administration, instead, seems to have concluded that the actual obligations of the treaty partners needed to be redefined. In essence, the administration chose a course over action to negotiate new obligations under the treaty, which it need not have chosen, on the basis of the evidence presented to it by Secretary Cheney and by the Congress.

Now, the administration has argued that the agreed statement presently under negotiation in the SCC will permit the deployment of any TMD system with an interceptor velocity of less than 37 kilometers a second that is not tested against a target traveling faster than 5 kilometers a second or at the range in excess of 3,500 kilometers.

The administration argues that this agreed statement codifies the demonstrated standard for any TMD system whose interceptor has a speed of less than 3 kilometers. This implies that off-board sensor data could be used by THAAD, for example, although there is no public, official confirmation of this point.

For systems with interceptors faster than 3 kilometers per second, the administration argues it has Russian agreement that the national compliance standards we presently use will continue to operate, although, again, this is not evident from the purported language of the agreement that has been published. That is, the administration argues that the agreed statement does not affect TMD systems with faster velocities than that of THAAD and, according to reports, both the State Department and White House argue that, pending a future agreement, each side will be able to use its own standards of compliance.

Now, three questions come to my mind immediately in light of this report of the agreement. The first addresses the meaning and the implication of the treaty itself. If compliance standards as currently practiced can be used for TMD systems with interceptors faster than 3 kilometers per second, why can't they be used for systems whose interceptors are slower?

Why is an agreement needed now on 3 kilometer per second systems and not on faster systems, especially since the U.S. has already certified the Navy Upper Tier system, although not with all the capability many of us think it should be permitted to have? Nonetheless, it has already certified the Upper Tier system which has an than entry velocity of faster than 3 kilometers per second.

And, last, with respect to these implied agreements or the notions that the Russians have agreed to the administration's positions with respect to having national standards apply to faster systems to the use of off-board sensors, do we actually have Russian assurances that that is the case? Have they agreed to those positions?

There are reports in the newspapers by Russian negotiators to the effect that they do not agree with the administration's position. And as you mentioned this morning, Mr. Chairman, that certainly is the case.

The second set of questions goes to the heart of the objective of the agreement. Does this agreement establish new obligations, and how are they different from those in the past? If it does impose new obligations—if it does impose new obligations—and we are free to do our own compliance standards on systems faster than 3 kilometers a second, don't we need to use the new obligation as the basis for our compliance? If we don't, then what is the purpose of the new obligation? If this is not a new obligation, then why are we negotiating it and why can't we simply use our own compliance standards?

Third set of questions derive from what is said to be an annex to the agreement concerning what are called confidence building measures. I am not certain I can tell you in any detail what those measures are. The reporting on them is fuzzy and, therefore, the first question one would want to know is what are they? The second question one wants to ask is why are they needed, and the third is, are they legally binding? For if they are legally binding, I fear they raise new questions about what, in fact, is going to be the standard for compliance, what are the terms of verification and monitoring. And lastly one wants to ask, have the Russians agreed that those confidence building measures will apply to the systems of both sides or do they apply only to the U.S. systems?

It is unclear at the moment how this agreement that is being reached with the Russians will be viewed here in the Congress and whether the administration intends to submit it to the Congress for its review and its approval. There are many differing opinions on the subject, but I think it is likely that eventually the administration will choose to submit the agreed statement to the Congress in the form of a bill of some kind for enactment by the Congress subject to the passage by a simple majority in both Houses. Personally, I would reject—I would urge the House to reject any measure that does not meet the standard for compliance which was set forth in this year's fiscal year 1996 authorization act in section 235, which is to say the demonstrated standard.

As I have suggested, I believe Secretary Cheney and the Congress since 1993 has consistently taken the position that the TMD demarcation, based on unilateral demonstrated standards, would leave us in compliance with our obligations under the ABM Treaty. But if a measure is submitted to the Congress by the administration which falls short of the section 235 provisions, I would urge the Congress to ask the following four questions and with this I will conclude, Mr. Chairman.

First, I would require that senior administration officials make available to the Congress the records that support the decision to seek the agreed statement in the first place. That is how the administration come to the conclusion that the demonstrated standard based on a unilateral decision did not meet our obligations under the treaty.

Second, I would demand written confirmation that the Russians have accepted the interpretations of the administration with respect to the issues not explicitly covered by the agreed statement; namely, the issues of national compliance standards and governing practices; that off-board sensors can be used and that confidence building measures apply to the systems of both sides.

Third, I would urge the Congress to conduct a review of the compliance review process itself with an eye to developing ways that its findings might be made more transparent to the Congress.

And fourth, if it appears the measure containing a demarcation agreement either should or is likely to pass, the Congress should consider establishing with it as a condition of passage the compliance standards consistent with section 235.

While I have suggested that the adoption of the demonstrated standard by the United States would avoid—is far better than the course of action embarked upon by the administration, nevertheless it remains the fact that even if we were to adopt a unilateral standard for compliance on TMD, I do not believe such a decision overcomes the impediments to both TMD and NMD deployments posed by the ABM Treaty. It is true that the treaty does not affect TMD nor prohibit NMD of the type and the version of the fiscal year 1996 defense bill vetoed by the President, but the fact is that, as much as Secretary Cheney observed, the demonstrated standard has its limits. The threat against which TMD are meant to defend will inevitably require more capable TMD interceptors. In the not too distant future it is all too likely that those required capabilities will be in excess of what can be certified as compliant with the treaty under the demonstrated standard.

Moreover, it remains the case that an effective NMD deployment, which on the evidence presented to Congress last week by the former CIA Director, is ever more urgently needed. An effective NMD will inevitably exceed what is permitted for deployment under the ABM Treaty.

In conclusion, then, the adoption of the demonstrated standard is but a temporary measure. It will provide the Nation with the capability it needs today to defend against current and near-term theater ballistic missile threats. But in the end it cannot provide for capabilities against longer-term theater threats and it certainly does not overcome the crippling limitations the ABM Treaty sets on NMD deployments. In the end, the treaty as signed in 1972 and amended in 1974, in my view, no longer serves the Nation's interests.

Mr. WELDON. Thank you, Dr. Cambone and Dr. Graybeal for your excellent statements.

[The prepared statement of Mr. Cambone follows:]

Statement of
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Before the
Military R&D Subcommittee
of the
Committee on National Security
House of Representatives

March 21, 1996

I Impact of ABMT

Introduction

The impact of the Anti-Ballistic Missile Treaty (ABMT) on the nation's ballistic missile defense (BMD) efforts has been a matter of considerable debate since the announcement of the Strategic Defense Initiative (SDI) by President Reagan on March 23, 1983.

To understand the ABMT's impact, it is necessary to separate two activities: research and development, on the one hand, and the testing and deployment on the other, of ground-based radars, launchers or interceptors capable of intercepting a strategic ballistic missile or its elements in flight trajectory. The ABMT does not prohibit the former. That is, it does not prohibit R&D of ground-based ABM systems or components.[1] Nor does it prohibit R&D on theater ballistic missile defense (TMD) systems.

Nor does the ABMT, strictly speaking, prohibit the testing and deployment of ground-based ABM systems. As signed in 1972 it permitted the establishment of two operational ABM sites, each with 100 deployed interceptors, and storage and test facilities and sites. An amendment in 1974 permits the sides to deploy 100 interceptors at one operational site. The Russians have a deployed ABM system around Moscow; the has no deployed ABM system. Implicit in the right to deploy is the right to test ABMT-limited items.

[1] The pursuit of R&D is, however, subject to the terms of the ABMT, according to a statement made by Gerard Smith during the ABMT ratification process, when the R&D leaves the laboratory and goes to the field; i.e., when it becomes subject to the national technical means of verification of a side.

The drafters of the treaty were cognizant of the fact that non-ABM radars, launchers and interceptors could be given ABM potential. The American side worried especially about the Soviet SA-2 which it believed, if armed with a nuclear warhead, could have ABM potential. So, in Article VI (a) of the ABMT, the sides agreed to that they would not give to non-ABM systems ABM capabilities and that they would not test non-ABM systems in an ABM mode.

By the terms of the treaty, monitoring and verifying compliance with its terms is to be based on "national technical means" (NTM) --that is, sensors of various kinds deployed on the earth's surface, or that operate in the air or in space that "see" or "hear" an actual event. In fact, the sides agreed not to interfere with the other's NTM of verification. The practical implication of this fact is that it is only through the use of data collected from an actual test by means of its own NTM that one side can demonstrate that the other had violated a particular provision of the treaty.

As this bare bones sketch of the ABMT would suggest, the closer the US moves toward deployment of BMD-- either TMD or NMD systems-- the more the ABMT has affected US BMD programs Thus, while it has been difficult in the past to convincingly document the impact of the ABMT on BMD R&D, that is not the case with respect to the anticipated deployment of either NMD or TMD.

In the case of NMD, concerns in the US that only an ABMT-compliant defense has a chance of being deployed has given rise to the inclination to propose near-heroic technical performance to a system so that it could defend the entire the US, including Alaska and Hawaii, from the single site permitted by the ABMT. On the doubtful proposition that such a system would be found to be technically credible on examination, I would suppose that we then begin to hear arguments that even if such a heroic system were possible, it would not be compliant because it provides for the defense of the territory defense of the US, and/or because it relied on systems whose physical properties were different than those predicated by the Treaty, and/ or because it relies on components not based on the territory of the US. But this is a subject for another day.

This testimony will concentrate on the impact of the ABMT on TMD. The current disagreement between the Administration and Congress on the demarcation of ABM and TMD systems is ample evidence that the ABMT is having an impact on TMD.

ABMT Impact on Theater Missile Defense

The ABMT is having an impact on US TMD programs. The evidence of this is clear in two cases. The capabilities of the Army's Theater High Altitude Area Defense (THAAD) and the Navy's Theater-Wide Defense (NTWD)(formerly known as the Navy Upper Tier System) system are being restricted by the Clinton Administration in the belief that Article VI (a) requires it. In each case the Administration believes the inherent

capabilities of the systems, if fully developed, would place them in a gray area between ABM and non-ABM systems.

Restrictions on THAAD: Although the Administration has certified the testing of THAAD through the demonstration and validation phase of development, it cannot tell you today if that system will be certified for deployment. To the extent they hold out hope that it will be certified (absent an agreement with Russia) it is with the proviso that THAAD not be equipped with the capability to receive cueing data on its target from any source other than its own radar, e g., satellites deployed in space for this purpose. In fact, in a September 27, 1995 letter to Rep. Curt Weldon the Undersecretary of Defense for Acquisition and Technology, Paul Kaminski, has informed the Congress that the Administration is spending $2.8M to defer incorporating this capability into THAAD.

If THAAD is certified for deployment on condition that it not be able to receive sensor data from, for example, space-based sensors this will be but the most blatant case of the ABMT causing the "dumbing down" of TMD. If THAAD were permitted to receive data from such sources, the potential area it could defend against attack from a ballistic missile fired from 1,000 km away could-- depending on the quality and timeliness of data provided-- nearly double in size. The ABMT is being applied to THAAD in such a way that its capability is being artificially cut in half against the type of ballistic missile US forces and allies are likely to encounter in the future.

Restrictions on NTWD: The NTWD is also being deliberately restricted. This system, due to its interceptor velocity and the potential of its kill vehicle, could engage theater ballistic missiles (TBM) or their warheads in their mid-course flight; that is, after the missile has burned out or a warhead has separated from the missile. To do this, the interceptor must rely on data about the target's flight to be provided to it from sensors, e g , SMTS, other than the SPY radars aboard the AEGIS cruiser or destroyer from which the interceptor was launched.

Early concepts for NTWD called for the development of this capability. Yet the concept of operations brought forward by the Navy for certification restricts the NTWD to making intercepts only while the target is within range of the SPY radar. This practically restricts the potential for intercept to what might be called the ascent phase of a TBM flight That is, the AEGIS ship must be close enough to a launch point of a TBM that its radar can track the flight and guide the interceptor before the TBM either attains a velocity the interceptor cannot overcome or it flies out of the radar's range or area of coverage.

Thus, it is true that if an NTWD ship is stationed so that a TBM launched relatively near the coast, or at an angle that the ship's radar can compute, the NTWD will provide coverage to an area equal to that which could be attacked by the TBM. But if the ship is located closer to the target than to the launch point requiring it make a mid-course

intercept, both the area it can protect and the probability of intercepting the TBM or warhead will be severely restricted.

We cannot know if an NTWD concept that included mid-course intercepts would have been certified. Such certification was not sought by the Navy. It is a matter of speculation why such certification was not sought. But one need only consider the plight of THAAD to appreciate that it would have been an extraordinary event had the Navy brought its mid-course concept-- which like THAAD depends on data from sensors other than its own radars to fully exploit its capability-- forward for review.

II. Negotiations to Obtain ABMT Relief for TMD Systems

The history of the Clinton Administration's efforts to negotiate a demarcation between ABM systems and TMD systems is too long, and too complicated, to retell here. Instead, I would like to call the committee's attention to the broader question of whether such negotiations are needed at all and what I believe are the critical questions raised by the agreement the Administration is reported to be seeking.

Need for Negotiation On TMD ?

Whether negotiations to permit the full development of TMD capabilities are required turns on the answer given to a preliminary question: are US obligations under the ABMT as a whole and under Article VI (a) in particular sufficiently clear such that the secretary of Defense (who is charged by the President with the responsibility) can certify in good faith that the TMD systems currently in development by the US can be tested or deployed in compliance with those obligations?

President Bush's secretary of Defense, Dick Cheney, came to the conclusion that US obligations were sufficiently well understood that he could recommend that the US was within its rights to develop and apply unilaterally a compliance standard for assessing TMD systems that would have permitted the systems currently in dispute-- especially THAAD and NTWD-- to be deployed consistent with its obligations. Secretary Cheney recognized that US obligations under the ABMT did not give it the freedom to do whatever it wished to do with TMD. The "demonstrated standard" he recommended would have permitted testing against targets below a specific velocity. TMD testing against targets with velocities faster than he recommended, i.e., those that in his review he was able to clearly identify as "strategic ballistic missiles" based on the available evidence, would require a negotiated change to the ABMT.

The Congress provided its version of the Cheney position, which has come to be known as the "demonstrated standard" in the FY 1994 Authorization Act. In a set of findings, Congress took the position that:

> ... the ABMT was not intended to, and does not apply... [to systems, etc.] that are designed to counter modern theater ballistic missiles, regardless of the capability of those systems...unless [they] are tested against or have demonstrated capabilities to counter modern strategic ballistic missiles;...

The findings put forward by the Congress are consistent with US obligations under the ABMT and in particular with those found in Article VI (a).[2]

As noted in the introduction, the ABMT limits ABM systems only. Article VI (a) in its prohibition on giving non-ABM systems ABM potential reinforces this point. Hence, both Secretary Cheney and the Congress have taken as the point of departure for their consideration how to define what, for the purposes of the ABMT, constituted an ABM system. Neither Cheney nor the Congress attempted to define the class of non-ABM systems that could not be given ABM capabilities and could not be tested in an ABM mode. The US has no obligation to do so under the ABMT.

Now, it is the case that within the ABMT no definition exists of the terms "to give," or of "capabilities to counter." There is agreement between the sides on what constitutes a test in the ABM mode. But there is no definition of what constitutes a "strategic ballistic missile" against which a test of a non-ABM system would be prohibited.

The findings of the Congress (which are public; those of Secretary Cheney are not) lend definition to these terms For Congress provides the key to defining a modern strategic ballistic missile in its 1994 finding on the characteristics of the theater ballistic missiles against which TMD must be designed to be effective:

> some theater ballistic missiles presently being deployed or developed (such as the Chinese-made CSS-2) have capabilities equal to or greater than the capabilities of missiles that were determined to be strategic missiles more than 20 years ago under the SALT I Interim Agreement of 1972.

With this finding, Congress reminds us that the definition of a strategic ballistic missile for the purposes of SALT I included missile systems with ranges equivalent to the CSS-2, with a velocity calculated at about 4.7 km/sec., and range of roughly 3,500 km. That missile was the SS-N-6. The association of the SS-N-6 with SALT I is critical, for SALT I was negotiated in parallel with the ABMT and its annexes contain the contemporary understanding of the basis on which a strategic ballistic missile could be defined

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[2] This language has been carried forward and can be found as well in Sec. 235(a)(1)(A) of the National Defense Authorization Act for FY 1996

In reflecting on the fact that contemporary theater ballistic missiles equal or exceed the range of the SS-N-6, and on its finding that the US cannot test a TMD against "modern strategic ballistic missiles" the Congress left implicit its conclusion: that so long as the US did not test a TMD component or system against a missile with a range/velocity in excess of an SS-N-6, it was not a test against a strategic ballistic missile was not inconsistent with the obligations of the parties to the ABMT.

The definition of a test against a strategic ballistic missile, however, does not directly satisfy the issue of how to assess the capability of the system. The Congress said that a "capability to counter" a strategic ballistic missile could be said to have been "given" only if the TMD system were actually tested against a strategic ballistic missile. In this they were taking a position at odds with the manner in which compliance was being assessed by the Compliance Review Group (CRG), the organization established by the secretary of Defense to advise him in the performance of his obligation to certify the compliance of US BMD testing and deployment.

The CRG has been basing its assessments of capability on what is called "inherent capability." That is, was there a reasonable chance that the inherent capabilities of a system under review could allow the user to intercept a ballistic missile or its elements in flight trajectory? Because these assessments were taking place in advance of an actual test, the only data on which the CRG has had to base its conclusions has been computer-based calculations and simulations. If there is one thing we have come to learn in this information age, it is that while the models and simulations we use may be of very high quality, in the end the results depend on the questions being asked. It is apparent that in the case of THAAD the question was asked in a way that the answer came out-- non-compliant.

Does Congress' position in the FY 1994 National Defense Authorization Act that only an actual test against target flying faster than a modern theater ballistic missile (e.g., the CSS-2) ask the question in a way that is in keeping with US obligations?

-- First, the ABMT provides no definition of how to assess capability. The inherent capabilities standard was chosen, unilaterally, by the CRG. It was not negotiated with the USSR or Russia. It seemed to the US at the time it was adopted to be an appropriate approach. The US is fully within its rights to alter its approach. And it need not negotiate any change in approach with Russia.

-- Second, it not at variance with the so-called Foster Box. This refers to testimony on the ABMT offered by Dr. Johnny Foster to the effect that in his personal opinion a system ought to be subject to a compliance review if it was to be tested against a target flying faster than 2 km/sec or above 40 km in altitude. The Foster Box was not negotiated with the Russians and was intended for internal US use. But to identify a threshold for review of a test does not establish a

standard for compliance nor does it define US obligations. For example, the US has certified as compliant systems tested well outside the Foster Box.

-- Third, it is consistent with the monitoring and verification provisions of the ABMT. Computer projections of a sides' system can be used to bring a charge of violation, but NTM alone is the basis for verifying compliance with the treaty. This fairly establishes the basis for the case that a demonstrated standard is consistent with US obligations. In fact, Gerard Smith testified during ABMT ratification that "we tailored the limitations [ABMT obligations] to fit the capabilities of national technical means of verification." The support of NTM for the "demonstrated standard" is confirmed by Dr. Sydney Graybeal, a member of the original negotiating team and the first SCC Commissioner.[3]

The Clinton Administration's Choice

Secretary Cheney's recommendation was contained in a letter he sent to the Secretary of State at the end of the Bush Administration. It was consistent with the position taken by the USG on the matter of demarcation in the context of the Ross-Mamedov talks and a version of it was included in a package tabled at the SCC that would have renegotiated the ABMT to permit a multisite NMD deployment. The Bush Administration was the first to advance the idea of a demonstrated standard.

It was Secretary Cheney's hope that his recommendation would become the basis for Clinton Administration policy. The position of the then-Democratic Congress' on the matter certainly lent weight to the proposition that should the new Clinton Administration be of a mind to do so, the legislative and executive branches could reach agreement that US obligations under Article VI (a) were sufficiently clear and that the unilateral adoption of the "demonstrated standard" in tests against missiles whose velocities did not exceed that of the SS-N-6 was consistent with those obligations. Such an agreement would have permitted the testing and deployment of TMD systems currently in development.

The Clinton Administration rejected this approach. Rather than viewing the issue as one of setting compliance standards in light of known obligations under the ABMT, the Administration instead concluded that the actual obligations of the treaty partners needed to be redefined. Hence, in November of 1993 the Administration announced it would seek an agreed statement in the SCC which would bring "to an end years of confusion and dispute as to what distinguishes an ABM system from a TMD system." This agreed statement, the administration said, would codify the demonstrated standard as put forward in the FY 1994 Defense Authorization Act.

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[3] See Dr. Graybeal's testimony before the Senate Armed Services Committee, May 5, 1995.

As noted earlier, I will not review the history of the negotiations as they have been reported. The point to be made here is that the Administration chose a course of action--to negotiate new obligations under the Treaty-- which it need not have chosen on the evidence presented to it by Secretary Cheney and the Congress. Moreover, far from leading to an end to years of confusion, it has only contributed an additional two and a half years of bitter debate on TMD demarcation that has brought us no closer to an end to confusion as to the distinction between ABM and TMD systems in the US. It is as likely to be a source of increasing bitterness and confusion between the US and Russia as well.

Implications of Negotiations

The reason we are not likely to see an end to confusion about TMD even if Administration should reach an agreement with the Russians on the issue is the substance of the agreement as it has been reported in the open press.

The Administration has argued that the agreed statement presently under discussion will permit the deployment of any TMD system with an interceptor velocity less than 3 km/sec. that is not tested against a target traveling faster than 5 km/sec. or over a range in excess of 3,500 km.[4] The Administration argues that this agreed statement codifies the "demonstrated standard" for any TMD system whose interceptor has a speed less than 3 km/sec. This would imply that off-board sensor data could be used by THAAD, although there is no public, official confirmation of this point.

For systems with interceptors faster than 3 km/sec., the Administration argues it has Russian agreement that the national compliance standards and practices of the sides' will continue to be paramount, although this is not evident from the purported language of the agreement that has been published. That is, the Administration argues that the agreed statement does not affect TMD systems with faster interceptor velocities. According to reports, both State Department and White House officials argue that, pending a future agreement, each side will be able to use its own standards to determine whether systems with velocities faster than 3 km/sec are compliant with the ABMT.

Three sets of questions come immediately to mind if this report is true. The first set address the meaning and implication of the agreed statement itself.

-- If US compliance standards as currently practiced can be used for TMD systems with interceptors faster than 3 km/sec., why can't they be used for systems whose interceptors are slower?

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[4] This conclusion and the following discussion is drawn from the report of the text of the agreed statement being negotiated with Russia by the US as it appears in "Russian Threat Cuts U.S. Defenses," The Washington Times, February 26, 1996.

-- Why is an agreement needed now on 3 km/sec. systems and not on faster systems, especially since the US has certified already the NTWD which has an interceptor faster than 3 km/sec? While it is true that the compliance certification for the NTWD is not as well drawn as might be in the view of some, is it not the case that the US has already certified the system as compliant?

-- Why would we want to seek an agreement in the future with Russia that could undo NTWD certification? If we would not, then why should the US engage in negotiations on this issue at all?

-- Does agreement not to test non-ABM systems against targets faster than 5 km/sec or with a range in excess of 3,500 km constitute a definition of a strategic ballistic missile?

-- Does the adoption of the demonstrated standard for systems whose interceptor velocities are at or below 3 km/sec mean that those systems can make use of any data from any sensor for any purpose?

-- Have the Russians explicitly agreed to the propositions on systems like NTWD and sensors like SMTS? In this regard, what is to be made of reports of Russian opposition to US assumptions on the status of the NTWD?[5]

The second set of questions goes to the heart of the objective of the Administration in negotiating this agreed statement, i.e., to redefine the obligations of the parties

-- Does this agreement establish new obligations of the US under the ABMT and are they different than those we recognized in the past?

-- If this agreement imposes new obligations, even if the sides are free to set compliance standards for systems with interceptors faster than 3 km/sec., isn't it the case that these standards must be based on this new obligation? If not, why not?

-- If standards in the future need to be based on this new obligation, how can systems faster than 3 km/sec. be certified?

-- If compliance standards do not need to be based on this new obligation, or if in fact no new obligations have been undertaken, on what obligation are they

[5] See, "Moscow Won't Buy US Missile Stance," The Washington Times, March 14, 1996, p. 7.

to be based?[6] If they are based on past understanding, do the speed and range definitions for a TMD target contained in the agreement-- i.e., 5 km/sec and 3,500 km-- apply in assessing TMD systems with interceptors faster than 3 km/sec.? Can these faster systems use any data from any sensor for any purpose? What about the demonstration of capability; does it apply to faster as well as slower systems?

-- If compliance standards are based on our understanding of obligations prior to the beginning of these discussions, then why can't we adopt the demonstrated standard and target definition on a unilateral basis?

-- Has the US given any assurances that it would not seek to certify a system with interceptors faster than 3 km/sec until a new agreement is struck in the follow-on negotiations?

The third set of questions derive from reports that the agreement will contain annexes and other confidence building measures (CBMs):[7]

-- What are these measures? Why are they needed? How are they to be treated by the sides unilaterally and in the SCC; that is, are they an integral part of the basic agreement or are they free-standing measures? Can a side modify the CBMs without modifying the agreement itself or, if a side does not honor one, some or all of the CBMs, can it be charged by the other with a breach of obligations under the ABMT?

-- Do these CBMs create new obligations for both sides in the area of monitoring and verification? Among the measures reported to be under consideration are on-site visits, limits on deployment areas, etc. Do these expand our current obligations on monitoring and verifying the ABMT?

-- Do the Russians agree that the CBMs apply to the systems of both sides?

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[6] In ibid., John Holum, ACDA Director in response to the reported position of the Russians that they do not accept the US view that pending an agreement on faster systems, the sides have a unilateral right to set compliance standards is quoted as saying, 'We're not prepared to accept the idea that the traditional approach to the treaty ruled out as a result of the agreement' on slower systems. If this is the case, one is bound to ask, why not just use the traditional approach for all systems? What is there about systems with interceptor velocity of 3 km/sec or less that demands an agreement?

[7] See, "Deal with Russia Could Hamper Missile Defenses," The Washington Times, p. 1ff., December 4, 1995, as well as the citation in footnote 4

III. Alternative Approach

The FY 1996 Defense Authorization Act requires that the Administration bring any agreement it reaches with Russia on TMD to the Congress for approval.[8] If it should bring an agreement of the kind being reported, then I would urge the Congress to pose the questions raised above. I would also urge that it raise questions about a complementary agreement to multilateralize the ABMT. The act of multilateralizing the ABMT will effectively tie the hands of future presidents. Agreements-- on faster TMD interceptor velocities as well as NMD deployments-- will be subject to the acceptance of the additional signatories, signatories who have no equities in the ABMT itself. This is particularly telling in the case of NMD, which likely would require amending the ABMT. In essence, the defense of the US would be subject to the approval not only of the Russian Duma, but the legislatures of states like Belarus, Ukraine and Khazakistan.

If an agreement is reached to multilateralize the treaty, the Administration will undoubtedly argue, citing the INF Treaty as a precedent, that such a change does not constitute a substantive change to the Treaty and does not require that an amendment to the Treaty be voted upon by the Senate. As a matter of good government the Congress should not permit its prerogatives to be ignored on matters of treaties. In fact, it should seek from the Administration a written justification for treating the ABMT as if it were still in force given the dissolution of the USSR.

With respect to the proposed agreed statement and CBMs, a more likely course is that the Administration will choose to submit it as a bill, subject to passage by a simple majority of both houses of Congress. I would urge the House to reject any measure that did not meet the standard set forth in Sec. 235 of the FY 1996 National Defense Authorization Act As I have suggested, Secretary Cheney, and a Congress with Democratic majorities, have endorsed an approach to TMD demarcation that permits the US to comply with its obligations under the ABMT, to deploy the TMD programs currently in development, and to do so without having to seek Russian approval. In rejecting a measure that falls short of the provisions of Sec. 235 of the FY 1996 Act the Congress will not leave the US TMD program, or the executive branch, without a basis for the deployment of advanced TMD systems. Neither America's armed forces nor its allies need be put at risk by the rejection of such a measure.

But this is only true, of course, if this Administration or any subsequent administration is prepared to pursue the alternative approach recommended by Secretary Cheney and put forward by the Congress If a measure is submitted to the Congress by

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[8] The exception would be if the Administration gained Russian agreement to the provisions set out in Sec. 235(b)(1) of the National Defense Authorization Act for FY 1996.

the Administration which falls short of Sec. 235's provisions, the Congress might consider the following as part its consideration of the bill:

-- first, require that senior Administration officials make available to the Congress the records that support the decision to seek an agreed statement and the CBMs with respect to TMD demarcation so that the Congress understands why the alternative of a unilateral compliance standard that it has endorsed was not chosen and what the Administration believes to be the deficiency in its understanding of US obligations under Article VI (a).

-- second, demand written confirmation that the Russians have accepted the interpretations of the Administration with respect to the issues not explicitly covered by the agreed statement: e.g., that national compliance standards and practices govern compliance assessments for systems with interceptor velocities faster than 3 km/sec.; that "off-board" sensors like SMTS can be used for TMD; that CBMs apply to the systems of both sides.

-- third, conduct a review of the compliance review process with an eye to developing ways that its findings might be made more transparent to the Congress; this is especially important because it is often the case that how the Compliance Review Group in DOD arrives at a compliance decision-- to include approaches rejected and the rationale used in coming to a decision-- is as important as the decision itself. The process has a way of setting its own precedents which in turn can affect a future compliance determination;

-- fourth, if it appears the measure containing a demarcation agreement either should or is likely to pass, consider establishing with it, as a condition of passage, the compliance standards consistent with Sec. 235 be followed in assessing TMD compliance in the future. It would be especially important to enact such a provision if the status of systems with interceptors faster than 3 km/sec. remain unclear and the administration argues that for such systems the "traditional" view of the treaty still obtains.

V. Conclusion

This testimony began with the observation that in principle the ABMT did not prohibit the deployment of NMD and that it did not apply at all to TMD systems.

The discussion has highlighted the fact that the ABMT is presently having a negative impact on the testing and deployment of two critical US TMD systems, THAAD and NTWD. It is my opinion that this impact is unnecessary and unwarranted.

The US has the legal right to establish on a unilateral basis the standards it will use in judging the compliance of these TMD systems with Article VI (a) of the ABMT. These standards have been elaborated by Secretary Cheney and by the Congress. If these standards were adopted, the Administration would not need to be engaged in the current round of negotiations on TMD with Russia.

Should the US adopt this course, it needs to be understood that a change in US compliance standards does not imply any change in an understanding of obligations under the ABMT. As noted above, neither Secretary Cheney nor the Congress believed the US could avoid or re-interpret its obligations in Article VI (a).

As troublesome as the Administration's evident intention to negotiate an unnecessary agreement are the reported terms of that agreement. It does not appear to protect, as the Administration claims it will, all US TMD programs currently in development. It appears to create new obligations with respect to TMD. The CBMs may create new obligations with respect to monitoring and verification under the ABMT. In concert with the agreed statement on demarcation, the Administration is also prepared to accept a multilateralization of the ABMT, a decision which would make it much more difficult to negotiate changes in the ABMT to repair shortcomings in the proposed agreed statement or to permit an NMD deployment to defend the US.

While I have suggested that the adoption of the demonstrated standard by the US would avoid the worst of these consequences, it nevertheless remains the fact that even such a decision will not overcome the impediments to both TMD and NMD deployments posed by the ABMT. It is true, as I have said, that the ABMT does not affect TMD nor prohibit NMD of the type proposed in the version of FY 1996 National Defense Authorization Act vetoed by the President. But the fact is that, as Secretary Cheney observed, the demonstrated standard has its limitations. The threats against which TMD are meant to defend will inevitably require more capable TMD interceptors. In the not too distant future it is all too likely that those required capabilities will be in excess of what can be certified as compliant with the ABMT using the demonstrated standard.

Moreover, it remains the case that an effective NMD deployment, which on the evidence presented to Congress by former CIA Director James Woolsey two weeks ago, is ever more urgently needed. An effective NMD will inevitably exceed what is permitted for deployment under the ABMT.

Thus, in conclusion, the adoption of the demonstrated standard is but a temporary measure. It will provide the nation with the capability it needs today to defend against current and near-term TBM threats. But in the end, it cannot provide for capabilities against longer term TBM threats. And it certainly does not overcome the crippling limitations the ABMT sets on NMD deployments. In the end the ABMT, as signed in 1972 and amended in 1974, no longer serves the nation's interest.

Mr. WELDON. I am sure we will have a number of questions, both verbal questions, I will myself, and I am sure others will have some follow-on that we would like you to come back to us with for further use and for consideration as we deliberate the defense authorization bill for this year.

Let me also state for the record to my colleagues that there was in the testimony of Dr. Graybeal and Dr. Cambone the notion that there is a national missile defense capability that is totally treaty compliant. As we maintained during our hearing and markup process last year, and as we all know and have heard again today, that there are in fact limitations with that from a technical standpoint and yet there is, in fact, that capability.

Because of the tightness of our hearing schedule, and all of my colleagues know this because we all have two or three hearings going on at the same time, we have tried to fit in almost 10 subcommittee hearings on the missile defense and treaty issues this year, and therefore we had originally scheduled a hearing, as you all know, a month ago where the Army and the Air Force were going to come in and allow you to ask questions about those two systems, partly in line with the questions that you raise today about limitations. We had to lose that date because we were not allowed to bring them in, but I will assure my colleagues that we have, in fact, reconfirmed that they will appear in one of the next hearings.

And one we will be holding will be with General Garner and General Linhard where they will come in uncensored and provide direct answers to members of this subcommittee on what the capabilities are, what the dollar amounts are, and where we can in open forum ask the appropriate questions about those capabilities and technologies. So that hearing will occur. And Dr. Graybeal, you mentioned both of those programs in your statement. We also plan to bring the Navy in for a full discussion of Navy Upper Tier as relates to the ABM Treaty as well. I agree it would, in fact, be a direct violation of the treaty at this point in time.

Let me also comment on your assertion in your statement about the SCC and what should be occurring there. I can assure you from my brief perspective and my discussions with Dr. Riveles, and I don't think it is of his choice because I think he is doing the job he has been assigned to do with the parameters within which he can work, there is not an effort under way to look at the possibility of in fact amending the treaty and working with the Russians in an aggressive manner. That is not happening. I can assure you that is not happening.

In fact, what was amazing when I was there on Friday was for Mr. Koltunov to raise the concern to me that his country has of the United States cooperating with both Israel and the Europeans on defensive capabilities and putting American dollars up, and I came back and said, General Koltunov, I understand, but are you aware that America has been for the last year putting dollars on the table for both the RAMOS and the SKPR project? Two joint projects with the Russians. American money. And guess what, the Russians have been unwilling to allow us to spend our dollars on the joint RAMOS program that the National Academy of Sciences in Russia wants to proceed with. So, in fact, we are trying to work with the

Russians as well. And part of the problem is because this administration is not placing an emphasis on that aspect of discussions and that, to me, is a real tragedy.

In your statement, Dr. Cambone, there was also—you didn't mention this, Dr. Graybeal, but I was interested in your statements about the multilateralization of the treaty. I, too, share your concerns. I don't understand what we are doing there and I would like to ask each of you to respond to this.

In fact, the representative from Belarus was there, and I don't have an objection to Belarus or Kazakhstan or the Ukraine having involvement in the negotiation, but why should a country with no ABM capability and which does not possess the technical elements that we are negotiating in a treaty of this nature, why should they have the power to veto it unilaterally unless perhaps there is some ulterior motive of bringing in more former Soviet republics who down the road can prevent the very treaty modifications that most of us feel will be necessary?

The third point that you raised was the fact that whatever changes are under way in the SCC need to be brought back to the institutions of the Congress. I can assure you I raised that issue directly with Mr. Riveles and I raised it with the entire negotiating team separate from the Russian meeting, and there was no commitment to us that they would come back to the Senate or the Congress to receive our support or our guidance. That, to me, is outrageous.

So I would ask you, first of all, to respond to the concerns of multilateralization, Dr. Graybeal. You didn't mention that. Perhaps you would like to give your perspectives on that and whether or not you think that presents any problems.

Mr. GRAYBEAL. Thank you, Mr. Chairman.

I personally have been opposed to multilateralization all along because I believe the treaty really affects that country which is permitted to have ABM defenses, which is Russia, and not the others.

I unfortunately have a different view of history than you as to the origin of this when you said the U.S. was pressing for multilateralization. My remembrance, maybe incorrectly, is that when there was a CIS, 10 nations met at Bishkek, and the Presidents of 10 of the former Republics indicated their interest and desire to become a party of the treaty, and it was the Russians that pushed for multilateralization. We accepted it and have a multilateralization negotiations going along in parallel with the demarcation. It is my understanding the U.S. position is that both must be agreed simultaneously.

I differ with that approach, too.

So I am opposed to multilateralization, but I do believe the precedent of the START Lisbon agreement did provide a basis for the United States to go along with it, but it is a bad idea. There are four now. I hope it is not 10 because you just multiple the complexities. I don't believe nations not directly involved in the ABM systems in the former Soviet Union should have a right to impinge on the negotiations by vetoing what may be necessary for these clarifications for a living document if we are going to go down that road.

I want to deal with one, not four, because their views of what is needed may not be influenced by their security interest but how much Nunn-Lugar money can you pass to us.

Mr. WELDON. Let me describe for the record that my assertion was not that we had pressed for multilateralization. My assertion was in line with what you said, that the CIS, in fact, did press for that. My assertion was when I raised the issue with the chief Russian negotiator, he came back to me and said, Mr. Congressman, you should address that question of the person sitting next to you, Dr. Riveles, because he has not raised that issue with us.

So my point was our side was not raising the issue of multilateralization, and the indication was from Mr. Koltunov that that was an issue they were willing to negotiate with us on and perhaps even agree with the notion it should only be the United States and Russia that should have to agree to any amendments to the treaty.

Mr. GRAYBEAL. You are correct. Dr. Cambone and I have had meetings with various Russians, and the Russian view now is they would prefer to have multilateralization. A change of heart, I think.

Mr. WELDON. Exactly. That was the point he was inferring to me in saying you should ask that question of your chief negotiator and let him raise that with us, and we will respond to it. That is exactly the point.

I don't want to take up too much time. I would only ask one other question and then get our colleagues in here.

Dr. Cambone, you assert that the ABM Treaty has a negative impact on the two systems, THAAD and Upper Tier. Please explain how and why this is occurring, in your opinion, Dr. Graybeal. Do you agree with Dr. Cambone's assessment?

Mr. CAMBONE. As I said during my presentation, Mr. Chairman, the effect on THAAD is most obvious and serious and severe. The system would have a much greater defensive capability if it were permitted to take data from sensors other than its own radar for the purpose of making intercepts. The reason is so that it can launch its interceptor earlier and catch the incoming missile or reentry vehicle earlier in its flight, which means that the area around which it could provide protection would be greater than if it had to wait until that intercept—the RV or missile—came within its radar range.

That range is relatively short to the flight of the missile. The closer the missile is when one has to make an intercept, the less area one can cover. An off-board sensor gives you the ability to reach out further and make an intercept.

So for THAAD what it's done, as I said, is against a thousand-kilometer range missile, it has about cut in half the area that could be protected by a single THAAD battery.

With respect to the Navy Upper Tier system, the way the present concept works is that if there is a missile being launched nearby, the Upper Tier system will, in fact, chase the missile to make an intercept. So it effectively makes an intercept in what is called the ascent phase of its flight. That works well enough if you are nearby the place where the launch takes place or the launch occurs inside the radar window of your system. That is the one on board the ship.

If you are not close enough or your radar can't pick up the missile, the Navy Upper Tier system is pretty useless, frankly, because the missiles will be flying too quickly for the radars to react and to guide the interceptor on board the ship to make an intercept.

That is not to say it can't make the intercept. The area in which it is able to cover is not without value, it is only that it is severely reduced in its effectiveness, and hence, in my view, if submitted as the administration intends in 2002 for a fly-off and a decision on which is the more cost-effective system, I think what you are going to find is the deck will end up being stacked against the Navy Upper Tier system for just this reason.

Mr. GRAYBEAL. As I pointed out, they differ with the THAAD finding, which essentially states that if you put internal software in the THAAD system and take data from external sensors, you essentially will be giving this ABM capabilities. That finding, I remind you, sir, was a finding of U.S. lawyers that it was not the ABM Treaty which would impinge on THAADs capabilities. This was a compliance issue.

You refer to the treaty. The treaty did not do this. We shot ourselves in the foot on this one. It is my understanding that THAAD dem/val program will not exceed three kilometers per second and not make the modifications.

So the current THAAD program is not impinging on what Dr. Cambone and I are both worried about, which is we should not reach agreements on things which will impinge on our capabilities to accomplish these capabilities in the long term. It is hard to change agreements once reached.

The Navy Upper Tier and THAAD both require data from external sensors to be fully effective, and I don't believe the data are limited by the ABM Treaty. As stated in my statement and in papers provided to you, I think it's important that we reach an administration position on data from external sensors. This issue has been around for at least 5 years that I have been directly involved in this. I have been pushing this issue, but to my knowledge the administration has yet to come to a closure on a decision on whether or not it's possible to use these data from external sensors for either ABM or TMD systems. Without that it's hard to move to the next step to make judgments that Dr. Cambone and I are suggesting need to be made.

Mr. WELDON. Thank you.

Mr. Spratt.

Mr. SPRATT. Dr. Graybeal, the ABM Treaty external sensors must be an adjunct to ground-based radars; must they not?

Mr. GRAYBEAL. Yes.

Mr. SPRATT. Does that mean that the Brilliant Eyes system would have to feed to the ground-based radar and undergo retransmission to the intercept vehicle to comply with the ABM?

Mr. GRAYBEAL. Yes, sir. You raise a very important point which I neglected to emphasize. There are no limits on data quality and quantity that can be sent from air-based, space-based, or marine-based to a battle management center.

If you transmitted those data directly to an ABM interceptor in flight, that would be considered guidance information, and there-

fore that is substituting for Navy radar and would be prohibited by the treaty unless it was located at the deployment site.

So these sensors are adjunct to the system. This was brought out in 1988 when Senator Nunn proposed his accidental launch protection system where he showed with one site in Grand Forks you could defend all of CONUS by using that site with upgraded PAVE PAWS radars and data from the GSTS, both of which were recognized to be compliant at that time. And as I noted in one of the papers here, if data from LPAR radars are not a violation of the treaty, and transmissions are made into Moscow via landline—we knew this in 1972—it becomes a verification problem.

If you explain the difference between data from an early warning system and data from space, then I would be willing to say maybe the space-based one should be limited, but there is no difference in these in terms of the type of data they provide to a battle management center.

Mr. SPRATT. But strictly speaking, to be treaty compliant is it your view the sensor must relay the information to the battle management system; then it has to be retransmitted, once it is converted into guidance instructions, to the interceptor?

Mr. GRAYBEAL. That is correct, sir. I recognize now, and we recognized it in 1972, and you are talking microseconds of going into battle management and sending it back, but I remind you, unless its verified by national technical means, we could not verify. LPAR's leading into Moscow via landline was something we didn't limit. It's hard to verify from space-based as it is encrypted into a battle management center. That is the reason.

If it is going to an interceptor in flight, it is clearly capable of providing guidance, and you can detect intercepts going directly to the ABM interceptor in flight.

Mr. SPRATT. You would take the position with respect to THAAD it is not an ABM; therefore, it is not limited by the external sensor limitations of the ABM Treaty.

Mr. GRAYBEAL. In my view, the ABM Treaty does not limit ATBM, per se. Then you get to the article VI exercise, and in my view, the THAAD system as presently developed and deployed, it is not an ABM system, not inconsistent with the ABM, and it must use data from external sensors, and these data do not provide that capability, in my view.

That is calculations, Mr. Congressman, which are based on computer simulations, which are very useful for program managers, very useful to present to Congress, but they are not verifiable. You are essentially setting up a double standard of verification. You are tying your hands in a manner tighter than you can tie the other person's hands, and any responsible arms controller would never get into the double or dual standard of verification in the process.

So the verification considerations must be brought in when you evaluate what you can or can't do, and the THAAD finding is unclassified information based solely on computer simulation.

Mr. SPRATT. Did I understand you to say that your present understanding of the dem/val program for the THAAD incorporates the software?

Mr. GRAYBEAL. No.

Mr. SPRATT. It does not.

Mr. GRAYBEAL. Its my understanding, and I have not talked to the general, but the THAAD dem/val program does not incorporate the software necessary to receive data from external sensors; therefore, the dem/val program, which is running for several months——

Mr. SPRATT. Doesn't have hardware either.

Mr. GRAYBEAL. There is not a plan to put that in the dem/val program. You should check with the dem/val people.

Mr. SPRATT. To what extent is that due to the fact that the SMTS itself is some years away from deployment?

Mr. GRAYBEAL. No, sir. The SMTS and SBIR and all these names, there was a BSTSA which certified that was an adjunct and was compatible, so I have difficulty understanding why the SMTS is not fully compliant.

It was years ago, but there are other ground-based and airborne sensors that could provide data that will enhance the effectiveness of these systems.

Mr. SPRATT. As I understand your testimony, Dr. Cambone, you say on page 8, "the administration argues that this agreed statement codifies the demonstrated standard for any TMD system whose interceptor has a speed less than 3 kilometers per second. This would imply that off-board sensor data could be used by THAAD, although there is no public, official confirmation of this point."

Do I understand the testimony of both of you that the administration is straddling this issue; have they ever not come down with an official statement of policy?

Mr. CAMBONE. As far as I know, sir, that is correct.

Mr. GRAYBEAL. Yes.

Mr. SPRATT. Is it your understanding furthermore that they are hedging on this because they are not settled as to the understanding of the ABM Treaty and how it applies to THAAD, or does it have something to do with the interface between the system and the SMTS, technical, engineering interface?

Mr. CAMBONE. I don't believe this is a question of technology or technical interfaces. I think it is a question of the manner in which the question was asked of the compliance review group and the manner in which that group went about analysis of the inherent capabilities of the system. And they came to the conclusion that if it were permitted to have this off-board data—by the way, it's just not SMTS, it's off any data outside, any external sensor—that they came to the conclusion that it would have capabilities against strategic systems. That was the decision.

I was at the time in the Pentagon involved in that process in its earlier days. We can talk about it later if you would like on how that conclusion was gotten to.

Mr. SPRATT. Let's come back to this. We can get confirmation. I would like to see the letter that Mr. Kaminski submitted to the chairman on the subject.

If you want to make it part of the record, it might be useful to have it in the record.

Mr. WELDON. I think we have done that. We will supply it to all members.

Mr. SPRATT. I will come back to questions later.

Let me just pursue one thought you left with us, Dr. Graybeal. You said that you would be opposed to trashing the ABM Treaty. You still think it serves a purpose. Would you just give us your notion of what purpose it serves?

Mr. GRAYBEAL. I think the original purpose and intent of the ABM Treaty were involved in both crisis and strategic stability, and it was a very simple concept in 1972 that if you got a thousand ICBMs on one side and a thousand on the other side, and each has 10 MIRVs on it, and both nations have a fully effective ABM system, in time of crisis there is a temptation to shoot first when your system will go through, and then your effective fully-deployed nationwide defense could take care of the retaliation.

So it was called crisis and strategic stability.

The other factor was arms race stability. That is that you build more defenses and more defenses, and there will be no more offense, and you keep ratcheting up the process.

Those were the two rationales.

As I mentioned in my statement, Secretary Perry seems to want to hedge against a resurgent Russia. They have not gone away. They still test strategic missiles, and it's possible you could get into an adversarial relationship. I hope not, and I sincerely believe not, but certainly if you hedge against that, I question why would not the rationale apply if Russia has 3,000 strategic weapons, and we have 3,000, and if we build a fully effective deployment of national missile defenses capable of negating those systems, you have lost essentially what was called MAD, mutual assured destruction, and you have reached stability.

In my view, the treaty plays a role and will do so until that day when Russia and the United States become true friends, and not this adversarial process. In the meantime many of us, Dr. Cambone and others, have suggested there should be a parallel work with Russia on cooperation in the whole ballistic missile defense area starting with early warning cooperation, which was proposed and turned down. Yeltsin proposed it to Bush. They agreed. Steve has been in the middle of the process in the government and out.

So we should move cooperatively, and the treaty may not be required in 5 or 10 years, but until we get over this hurdle, throwing out this treaty, in my view, is a major mistake.

Mr. SPRATT. One final question. If I could confirm for the record, I understand both of you to say you have no problem with the demarcation limits that are set out in this year's Defense Authorization Act, namely the limitations defining a testing in ABM mode to mean testing against a target which is coming in at a velocity of more than 5 kilometers per second over a range of more than 3,500 kilometers?

Mr. GRAYBEAL. Yes.

Mr. SPRATT. That is satisfactory; you think it serves a purpose to have that demarcation?

Mr. CAMBONE. Yes, sir.

Mr. GRAYBEAL. Yes, sir, and I think it's adequate.

Mr. CAMBONE. Provides a sufficient balance. That would be a theater system at 5 kilometers a second and what are now systems that fly at 7 kilometers a second. If we are verifying by national technical means, that is a pretty wide gap.

Mr. GRAYBEAL. May I add one or two points, sir?

Mr. SPRATT. Sure.

Mr. GRAYBEAL. People criticize the treaty because it didn't define strategic ballistic missiles in the context of the ABM Treaty. During the negotiations the Russians had—the Soviets had an entirely different view of strategic than us. Their view is it was any missile that could hit the territory of the other side. That would have caught all our forward-based system, all our carriers, and we wouldn't accept that definition. That went on through SALT II and wasn't resolved until much later.

So the reason there is a strategic definition, we could not have reached one then, but now you have had a different world, different set of missiles, so I think there is a requirement for this demarcation. But I believe the 5 and 35 is an adequate demarcation, and we don't need to get into a lot of complexities, many of which will not be verifiable by national technology means.

Mr. SPRATT. Thank you.

Mr. WELDON. Thank you, Mr. Spratt.

I would add that was a major part of our bill last year, and we felt that it was logical that the administration would accept it since past Congresses had put the same definition in, and yet it became one of the reasons why the bill was vetoed, which was very perplexing to us in this body.

We are waiting for the presence of a quorum so we can close the hearing for the second panel, which will be a classified session where we can get into more detail on the issues with three of our key defense witnesses. So we are currently in a hold position.

I guess while we are waiting, we have 6, 8, about 12 members. We need 13, so we will close at that time.

Questions by members?

Mr. Tiahrt—sorry—what is our order? I don't want to go out of order.

Mr. Tiahrt.

Mr. TIAHRT. Thank you, Mr. Chairman.

I am a little curious. We seem to have restrictions on the ABM Treaty based on our relationship with Russia, yet there are other countries available that have the technology and the weaponry to pose a threat to United States citizens, and if I understood correctly, Korea has the No Dong, which now can reach American citizens. We have China, I suppose, that has the intercontinental capability. I think even the worst critics think there are some, yet our restrictions seem to be based on our relationship with Russia for protecting our people, I guess only because they are the only ones with the capability for an antiballistic missile capability.

Is that the reasoning for that? I am a little puzzled why we allow them to restrict us from protecting our citizens from other threats outside their country.

Perhaps we can start with you, Mr. Cambone.

Mr. CAMBONE. Mr. Congressman, the issue is whether or not you believe that the ABM Treaty remains in force. The ABM was signed with the Union of Soviet Socialist Republics. The U.S.S.R. no longer exists. At the time there was a rationale, as Dr. Graybeal put forward, for that treaty. That time has passed, and so, too, has the U.S.S.R.

The administration nonetheless has taken the position that while it has yet to recognize Russia or any other state formally as a successor to the ABM Treaty, it is nonetheless acting as though the treaty remains in force, and in order to be able to make changes to the treaty, they need to be negotiated with the treaty partner, which for this purpose it's treating Russia as such.

So it is the view of what the legal requirements are that are being confronted. The issue of whether we should simply declare the treaty to be no longer in force, or if you believe the treaty to be in force but no longer in our interest to withdraw or abrogate, is a higher order political question. This administration on its very first day in office announced it would not do so. It said the ABM was the cornerstone of arms control, and that it would continue to abide by its terms.

That is what brought us to this present place.

Mr. TIAHRT. Yet you agree there are other countries even in the former U.S.S.R. that have the capability of ICBM's?

Mr. CAMBONE. Yes and no. The former Republics of the Soviet Union are, under the terms of Start II, committed to have surrendered their ballistic missiles as part of the Start I protocol at Lisbon. But can they have that capability in the future through space-launched vehicles or reconstitute the capability? The answer is yes. China clearly poses a threat to the United States. It's possible for the North Koreans and others to develop the capability to reach either the States of the United States or our allies.

So, yes, the answer is we are at risk.

Mr. WELDON. I believe we can now take a quorum vote. Members stay in the room so we can do the vote.

Mr. GRAYBEAL. Quick comment on this. Russia and China are deterred by United States strategic forces. I object to the statement that the United States has had no defense for 40 years. We have had an excellent defense. We have deterred them effectively.

The world has changed. You rightly point out there are other countries that are acquiring capabilities of attacking the continental United States and Alaska and Hawaii. Because of that we must move to create defenses and recognize that, and that may require some modifications and amendments to the treaty, but in my view does not require withdrawal from the treaty.

Mr. WELDON. Thank you. Sorry.

It appears that to continue this discussion may involve disclosure of classified information. Therefore, the Chair recognizes the gentleman from South Carolina, Mr. Spratt, for the purpose of a motion to close.

Mr. SPRATT. Mr. Chairman, pursuant to the provisions of committee rule 9(a), I move that the subcommittee close during further proceedings today, for national security reasons, which closing applies to everyone except committee and members' personal staff with top secret security clearances.

Mr. WELDON. The committee rule requires this to be a rollcall vote.

The clerk will call the roll.

The CLERK. Mr. Weldon.

Mr. WELDON. Aye.

The CLERK. Mr. Weldon votes aye.

Mr. Spratt.
Mr. SPRATT. Aye.
The CLERK. Mr. Spratt votes aye.
Mr. Hansen.
[No response.]
The CLERK. Ms. Schroeder.
[No response.]
The CLERK. Mr. Tiahrt.
Mr. TIAHRT. Aye.
The CLERK. Mr. Tiahrt votes aye.
Mr. Ortiz.
Mr. ORTIZ. Aye.
The CLERK. Mr. Ortiz votes aye.
Mr. Hastings.
Mr. HASTINGS. Aye.
The CLERK. Mr. Hastings votes aye.
Mr. Tanner.
Mr. TANNER. Aye.
The CLERK. Mr. Tanner votes aye.
Mr. Kasich.
[No response.]
The CLERK. Mr. Taylor.
Mr. TAYLOR. Aye.
The CLERK. Mr. Taylor votes aye.
Mr. Bateman.
[No response.]
The CLERK. Mr. Meehan.
[No response.]
The CLERK. Mr. Dornan.
[No response.]
The CLERK. Mr. Underwood.
Mr. UNDERWOOD. Aye.
The CLERK. Mr. Underwood votes aye.
Mr. Hefley.
Mr. HEFLEY. Aye.
The CLERK. Mr. Hefley votes aye.
Mrs. Harman.
Mrs. HARMAN. Aye.
The CLERK. Mrs. Harman votes aye.
Mr. Cunningham.
[No response.]
The CLERK. Mr. McHale.
Mr. MCHALE. Aye.
The CLERK. Mr. McHale votes aye.
Mr. McHugh.
[No response.]
The CLERK. Mr. Geren.
Mr. GEREN. Aye.
The CLERK. Mr. Geren votes aye.
Mr. Hostettler.
Mr. HOSTETTLER. Aye.
The CLERK. Mr. Hostettler votes aye.
Mr. Kennedy.
Mr. KENNEDY. Aye.

The CLERK. Mr. Kennedy votes aye.
Mr. Hilleary.
Mr. HILLEARY. Aye.
The CLERK. Mr. Hilleary votes aye.
Mr. Scarborough.
[No response.]
The CLERK. Mr. Jones.
Mr. JONES. Aye.
The CLERK. Mr. Jones votes aye.
Mr. Chairman, on this vote to close there are 16 ayes.
Mr. WELDON. The motion is agreed to.

All persons except Members and staff with appropriate security clearances are directed to leave the hearing room.

Our thanks extended to both of our expert witnesses.

We would ask you to provide suggestions as we move to our authorization bill, and also we extend the invitation for you to stay if you like for the closed part of the hearing.

Thank you.

[Whereupon, at 11:25 a.m., the subcommittee proceeded in executive session.]

NEAR-TERM NATIONAL MISSILE DEFENSE OPTIONS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
JOINT WITH MILITARY PROCUREMENT SUBCOMMITTEE,
Washington, DC, Tuesday, June 18, 1996.

The subcommittees met, pursuant to notice, at 2:03 p.m., in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the Subcommittee on Research and Development) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. The subcommittees will please come to order.

It is our pleasure today to welcome a panel of expert witnesses that we had actually hoped to have appear before these two subcommittees about 4 months ago. In fact, the original date for this hearing was scheduled on February 29, and unfortunately, because we were not given the opportunity to have our three witnesses appear before us in spite of the fact that they were prepared to testify, we had to postpone that hearing—well, we held the hearing anyway, with no one here—and then we had to reschedule the hearing when we could fit it in with the authorization markup. It took us 4 months to get this particular hearing rescheduled.

The reason why the hearing was and is so important is because as we worked on last year's authorization bill, we were very careful to craft a piece of legislation that would not cause us to be in direct violation of the Anti-Ballistic Missile [ABM] Treaty upon acceptance of that bill, that would not require tens of billions of dollars of investment for national missile defense [NMD] options, and that would in fact be a response to the threat that many of us see out there, and that is from a more limited attack from a rogue nation, or perhaps an isolated attack.

What really bothered us was that during the final hours of that authorization conference process, when we thought the administration was in fair agreement with us, we got word that the President was planning to veto the bill. In fact, he did veto the bill, as we all know. That veto came over the Christmas holidays, and I have the veto message here.

I want to refer to the veto message because I think it gets at the thrust of today's hearing. The veto message of the President from last year's authorization bill say that the bill required deployment by 2003 of a costly missile defense system. We want to ask the question today, is that what we were talking about? The President's veto message also said that it would directly cause us to vio-

late the ABM Treaty. We want to ask about that as well today. And further, the bill said we would waste tens of billions of dollars, and it specifically says "tens of billions of dollars."

Now, this was the statement given by the President of the United States in response to the missile defense portion of our authorization bill last year. In fact, as a result of his veto message, which was given on December 28, I talked to at that point in time the head of missile defense and asked the general whether or not we could provide a low-cost treaty-compliant missile defense option within the confines of our bill. And there was an early January article written by John Donnelly in Defense Week, which I happen to have a copy of with me, where the former head of Ballistic Missile Defense Organization [BMDO], General O'Neill, for the first time on the record said, "Yes, we can provide a treaty-compliant NMD option even from a single site." It was the first time that that had been publicly acknowledged.

So the point was that we had a bill being vetoed for reasons that many of us in fact felt were not valid. And the purpose of the hearing that was scheduled on February 29 was to allow the services and BMDO to come in and answer technical questions from Members of Congress about the options—about the Army variant, which I had been briefed on; about the Air Force variant, which I had been briefed on; and about variance within BMDO itself, the 2-plus-2 option and 3-plus-3 option. But that hearing did not go forward, and it was unfortunate, because I think that hearing could have helped lay the groundwork 4 months ago for much of the debate that has occurred around this beltway and in this country on missile defense and what in fact the various options are in terms of our capabilities and in terms of our dollar limitations and treaty obligations.

Well, that is what we are about to do today. This is testimony on near-term national missile defense, and we are extremely pleased that all three witnesses are here. As I said earlier, Deputy Secretary of Defense John White did not allow the witnesses to appear prior; he said on the record that it was because Secretary Perry was to come in and testify beforehand, but the same day that we had our hearing scheduled and actual held it without witnesses, the No. 2 person in terms of the Joint Chiefs of Staff, Admiral Owens, was appearing before the Senate in a hearing where he got into great deal about missile defense options.

But be that as it may, the gag order has been lifted on our witnesses today, and we are extremely pleased and happy to have them here. We know that they are going to be very candid in their testimony.

First of all, I would say I am extremely pleased to have Adm. Richard West, who is the Acting Director of the Ballistic Missile Defense Organization. I understand this is his first appearance before this committee and the Congress at the table; we know he is up to it because he has been doing a fantastic job behind the scenes and has been a great person on this issue for this country. So we are very pleased to have Admiral West with us.

We are also pleased to have Gen. Jay Garner, Commanding General of the U.S. Army Space and Strategic Defense Command, who has briefed many Members on the Army option that we are going

to talk about today; and Gen. Robert Linhard, Director of Plans for the U.S. Air Force, who has briefed many Members on the Air Force option.

Both General Garner and General Linhard have, at our request, briefed the subcommittee chairs, the full committee chair, and members of both parties on the capabilities of the services as relates to a short-term national missile defense capability.

I know I speak for all of my colleagues in welcoming all three of you gentlemen to the committee this afternoon, and before turning to the witnesses, I would like to make a few other brief comments.

It should not surprise anyone to hear that I strongly support the deployment of a national missile defense system for the American people. A vulnerable America will, I believe, undermine U.S. credibility as we seek to influence events and promote our interests across the globe. A vulnerable America is more prone to shrink back into its shell just at a time when American activism and leadership is needed in the world, leadership that can promote democracy and economic freedom, contain aggression in various regions of the world, and reduce tensions among competing players.

A strong support for national missile defense is masked, however, by an open mind when it comes to the appropriate technology and system that ought to be deployed, which is why last year, I sought out both General Garner from the Army standpoint and General Linhard from the Air Force standpoint to see what capabilities we had that were basically available almost off the shelf. That is what led me to the conclusion last year in our defense authorization bill that we should look within to existing capabilities to meet the threat that most of us see is there and is real, and that is the short-term threat of a rogue nation having a missile offensive capability.

It is a tribute to Ronald Reagan's vision that we can state categorically today that missile defense is indeed technologically feasible despite the pundits earlier divisive claims that it will never work. Furthermore, it is important to note that there are affordable options for defending the American people against the threat posed by ballistic missiles, and they are available now. Now, all we need is the political will to field such a system.

I maintain that the key difference between most Members of Congress and this administration is one word, and that word is "deploy." The question is what can we deploy now, what are the capabilities, what are the shortcomings, what are the dollar costs, what are the treaty implications. That is what this hearing is all about.

I would at this point in time like to turn to the distinguished chairman of our Acquisitions Subcommittee who has been an equal leader and co-partner in this battle for missile defense, Mr. Hunter.

STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. Thank you, Mr. Chairman.

I want to move along with the hearing, so I just have some very short comments. But one major theme that has been developed by

the administration in dragging its heels on missile defense has been that if you wait a few years, the electronics revolution is going at full speed, and we will have something a lot better. So I would like the witnesses to comment during the discourse here as to whether or not you think we should wait until the electronics revolution is over, the high-tech revolution, before we build a missile defense.

Second, there is a theme that we are somehow going to get here in the nick of time. The Intelligence Agency said that at least for the lower 48 States, there probably will not be a missile attack until after the year 2000. I do not know why they put Hawaii and Alaska in a lesser status. But we all know that it takes between 10 and 20 years in this country to develop a major weapons system.

So I am trying to figure out if the Clinton administration has derived this theme from the Japanese production methods called just-in-time, where your steel arrives at the assembly line just before you put it into the car, or maybe they saw some late-night movies where the hero rushed out onto the railroad tracks and untied the heroine just in time, in the nick of time, before the train arrived.

Whether or not you think, as our military witnesses, that it is well to be prepared and to start building something now—in other words, I would like you to comment about the convergence of the threat, both national missile defense and the threat with respect to theater missiles, and the actual fielding of the systems that we are talking about, because none of these systems are fielded yet, and whether or not you think that that convergence is going to end up with us rolling out the defender a year or two before the offensive missile system is in place or vice versa.

So with those comments, thank you. I want to thank the gentleman from Pennsylvania, who has really been a tremendous leader on this issue, and thank you, Mr. Chairman, for putting this thing together. I hope we have a good hearing.

Thank you.

Mr. WELDON. Thank you, Mr. Hunter.

I will now turn to the distinguished ranking member of the Procurement Subcommittee, Mr. Skelton, who will be followed by the distinguished ranking member of the R&D Subcommittee, Mr. Spratt.

STATEMENT OF HON. IKE SKELTON, A REPRESENTATIVE FROM MISSOURI, RANKING MINORITY MEMBER MILITARY PROCUREMENT SUBCOMMITTEE

Mr. SKELTON. Thank you, Mr. Chairman. I also thank the chairman of the subcommittee of which I am the ranking member, Mr. Duncan Hunter, for bringing this hearing to our attention today. It is a very important subject.

I am most concerned about this missile defense system and various missile defense systems, not only because of the nature of the threat, but because of the major budget implications associated with the various proposals. Mr. Chairman, you have heard me on many occasions talk about taking care of the troops, and my major fear is that over a period of time, this takes money away from the troops, their families and readiness.

We need to protect Americans both at home and in uniform abroad, and it is important to meet the constantly growing threat. I commend both of the chairman for their leadership. We in the committee are all more focused on area because of your leadership.

I am particularly interested in hearing from our witnesses today, General Linhard, General Garner, and Admiral West. Their expertise is especially essential to us, and as we formulate a sound defense policy, we must hear them and hear them out.

Before leaving today, I ask that these gentlemen assist us in an effort to grasp the threat, the potential threat, and also the associated costs of the various alternatives. I have heard many figures, from $3 to $13 to $31 to $60 billion, all over the next 6 years. I would appreciate if you could shed some light on the capabilities of these systems and determine the cost judgments that you might have.

Thank you so much, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Skelton.

Mr. Spratt.

STATEMENT OF HON. JOHN M. SPRATT, JR., A REPRESENTATIVE FROM SOUTH CAROLINA, RANKING MINORITY MENBER, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. SPRATT. Thank you very much, Mr. Chairman.

General Linhard, it is good to see you again; I think it was last in Minot if I am not mistaken.

Although the threat of missile attack from our oldest adversary is receding, and the latest national intelligence estimate, the NIE, forecasts that the continental United States is not likely to face a ballistic missile threat from rogue states like North Korea for some years to come, the world remains a dicey place, and estimates can be wrong. So we need contingency options, and that is the purpose of our hearing today, to look at options developed by the Army and the Air Force for expedited deployment of missile defenses.

There seems to be some consensus at least that the sensible date for deploying a national missile defense system in the due course of business is the year 2003. That was the date that was targeted in last year's authorization conference report before it was vetoed; it is the date targeted in the Defend America Act; it is the same date set by the administration in its so-called 3-plus-3 option, and in my substitute amendment to H.R. 3144.

So that while I welcome the chance to look at these contingency options, and I appreciate the need for being prepared, my preference is to keep focused on developing the best possible system that we can have ready for deployment in the year 2003.

If the contingency options take the same technology highway as the ground-based system being developed for deployment in 2003—what I will call the objective system—and if they simply take an earlier off-ramp off this highway, then I believe they warrant special scrutiny. But if they are not closely related to the objective system, if they would take NMD research down a different path and possibly—to use a phrase coined by General O'Neill—possibly into a "technological cul-de-sac," then I would argue that we should not let these options distract us or deflect the focus of our research.

If we are in earnest about deploying a ground-based national missile defense system, we have scarce resources, and we have to husband these resources and stay focused if we are going to reach our goal. We simply cannot afford to pursue several systems at once as we did in the eighties. I do not dismiss any option out-of-hand, but given the limits of our budget, I think we have to keep our contingency plans basically on the shelf and stay the course toward the objective system by the consensus date 2003.

I would ask our witnesses to clarify for us whether the contingency options they present are stepping stones to the objective system or whether they are in a sense a detour into other technologies.

I would remind everyone that the contingency options that we discuss today do not exactly measure up to the full-fledged requirements of H.R. 3144. That bill, the Defend America Act, calls for a "highly effective defense" against "a limited, unauthorized or accidental ballistic missile attack." According to the Deputy Secretary of Defense, John White, neither the Air Force's option nor the Army's option nor a more robust, single-site NMD system, for that matter, would protect us against an unauthorized attack if at least that is defined as "a boat load of Russian Submarine-Launched Ballistic Missile [SLBM's]."

Furthermore, it is doubtful that the contingency options before us would provide a highly effective defense against accidental launches if the warheads carried sophisticated penetration aids or were salvage-fused or had some other devices to assist penetration.

In the case of a deliberate attack from a rogue Third World Nation, the number of interceptors these contingency options would deploy is correlated to how many warheads they would intercept. This is a point that is often skimmed over, but I do hope our witnesses can discuss exactly how many interceptors these contingency options would entail and how many warheads these interceptors would take out, including the probability of kill, the fact that probability of kill is going to vary with the sophistication of the incoming warhead.

And I would ask our witnesses to discuss other things that tend to get left out of the estimates—testing, for example, rigorous testing, to prove the efficacy of the system that we want to deploy—and if you can and if you are prepared to do so, give us some notion of operations support cost, which was never included in any of the estimates, but if it comes in the near term, we will have to include that within in the Future Year Defense Program [FYDIP] as well as the cost of acquisition.

Rather than cover the rest of my statement, which is lengthy, I would like, Mr. Chairman, to offer it for the record, leaving those questions to our witnesses. I look forward to their testimony and to their presentation about the options that we have for contingency purposes.

Thank you very much for calling this hearing.

Mr. WELDON. Without objection, the gentleman's statement is entered into the record. We appreciate the statements of each.

[The prepared statement of Mr. Spratt follows:]

OPENING STATEMENT OF REP. JOHN SPRATT

RANKING DEMOCRAT

MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

JUNE 18, 1996

Although the threat of missile attack from our oldest adversary is receding, and the latest national intelligence estimate, or "NIE", forecasts that the continental U.S. is not likely to face a ballistic missile threat from rogue states like North Korea for some years, the world remains a dicey place and estimates can be wrong. We need contingency options, and that is the purpose of our hearing today: to look at options developed by the Army and the Air Force for expedited deployment of missile defenses.

There seems to be consensus that the sensible date for deploying a national missile defense system, in the due course of business, is the year 2003. This was the date targeted by the majority in last year's defense authorization conference report

before it was vetoed. This is the same date targeted in H.R. 3144, the "Defend America Act." And this is the same date set in the Administration's own national missile defense plan, the "3 plus 3" option, and in my substitute amendment to H.R. 3144.

So, while I welcome the chance to look at NMD contingency plans, and appreciate the need for being prepared, my preference is to keep focused on developing the best possible system that can be ready for deployment in 2003.

If the contingency options take the same technology highway as the ground-based system being developed for deployment in 2003--what I call the "objective" system--and if they simply take an earlier "offramp" from this highway, then I believe they warrant scrutiny. But if they are not closely related to the objective system, if they would take our NMD research down a different path--and possibly into "a technological cul-de-sac," to borrow a phrase from Gen. Malcolm O'Neill-- then I would argue

that we should not let these options distract us or diffract the focus of our research.

If we are in earnest about deploying a ground-based NMD system, we have scarce resources, and we have to husband these and stay focused on our goal. We simply cannot afford to pursue several systems at once, as we did in the 1980's. I do not dismiss any contingency option out of hand, but given the limits of our budget, I think we need to keep our contingency plans on the shelf and stay the course toward an objective system.

I would ask our witnesses to clarify for us whether the contingency options they present are stepping stones to the objective system, or whether they are a detour into other technologies.

I remind everyone that the contingency options we discuss today do not meet the requirements set forth in H.R. 3144, the

"Defend America Act". That bill calls for a "highly effective" defense against "limited, unauthorized, or accidental ballistic missile attacks." According to the Deputy Secretary of Defense, John White, neither the Air Force's nor the Army's contingency response, nor a more robust single-site NMD system, would protect against an unauthorized missile attack from a Russian sub. Furthermore, it is doubtful that the contingency options before us would provide a "highly effective" defense against accidental launches if the warheads carried penetration aids or were salvage fuzed.

In the case of deliberate attack from a rogue, third-world nation, the number of interceptors these contingency options would deploy is correlated to how many warheads they could intercept. This is a point that is often skimmed over, but I hope our witnesses can discuss exactly how many interceptors these contingency options would entail, how many warheads these interceptors would take out--including how the probability of

kill varies with the sophistication of incoming warheads--and the cost of purchasing additional warheads, as we scale up to the current treaty limitation at 100. I would also ask the witnesses to discuss how many tests would be needed to prove the efficacy of their options, and the cost of those tests, and to give us some notion of operation and support costs.

H.R. 3144 requires "one or a combination" of four different systems to be deployed by 2003, and then further requires this original system or combination of systems to be "augmented over time to provide a layered defense." The four systems are:

1. Ground-based systems, like the ones we are reviewing today;
2. Sea-based options, which this committee received testimony on earlier this year;
3. Space-based kinetic kill interceptors; and
4. Space-based directed energy weapons.

Clearly, the systems before us today represent only one of the

four options called for in H.R. 3144, and would only be one piece of any "layered" system.

I point out the differences between the requirements of H.R. 3144 and the contingency options we are reviewing today because several reports over the last two weeks imply that CBO has revised its cost estimate of H.R. 3144. These press reports are not correct. On June 3d, CBO costed out the two contingency options before us today and the President's "3 plus 3" plan at the request of Chairman Spence. CBO estimated the costs of these options to range from $4 billion to $13 billion.

When this new estimate was released, several reporters and many members of Congress presumed that CBO had changed its cost estimate of H.R. 3144. But as June O'Neill, Director of CBO, stated to Defense Daily on June 7: CBO's estimates have not changed. H.R. 3144 still costs $31 to $60 billion, plus operating costs. The contingency options before us today do not fulfill H.R. 3144's requirements, and their costs do not

represent the cost of the combination of systems--the layered system of protection--that H.R. 3144 mandates. We are not discussing the "Defend America Act", and any cost estimates that may be discussed today cannot be associated with the cost of the "Defend America Act." I think it is important that the Members present and the press covering this hearing fully understand this so that there is no confusion on this point when H.R. 3144 comes to the House floor.

Finally, let me note for the record that the issue of national missile defense is tied inextricably to the subject of the ABM Treaty. And in the case of the Air Force option, there could well be START Treaty issues as well. With all due respect to our witnesses, they are not responsible for determining the treaty compliance, or non-compliance, of the NMD contingency options. I hope that at some point in the future, the committee can have a briefing or a hearing on the treaty implications of these contingency options as well the Administration's "3 plus 3"

plan and any options being advocated by the Congress, such as those in H.R. 3144.

Mr. Chairman, thank you for calling this hearing. I believe that a ground-based, treaty compliant system is the only option that has a chance of gaining bipartisan support. I appreciate this opportunity to learn more about the various ground-based options that exist, and look forward to the testimony of our witnesses.

Mr. WELDON. I would ask the distinguished chairman of our full committee, who has taken time out of his extremely busy day, to join us, if he would like to make any opening comments.

Mr. Spence.

Mr. SPENCE. No statement. Thank you.

Mr. WELDON. Thank you for being here.

With that, I would like to also acknowledge for the full committee members and the subcommittee members who are here that we will be holding another hearing, a very important series of hearings, on Thursday of this week at 10 a.m., members only, a classified hearing dealing with proliferation issues. We have a request out for two senior people from the administration, and we hope that the administration will acknowledge the severity of our request by allowing them both to appear—Lynn Davis, Undersecretary of State, and Ash Carter, Assistant Secretary of DOD—to discuss proliferation issues so that we can better understand proliferation issues that are occurring around the world and the impact that they have had and will be having on the response of this committee in terms of our appropriate missile defense programs.

With that, I would ask that our panel start with Admiral West, the Acting Director, Ballistic Missile Defense Organization, followed by Gen. Jay Garner, Commanding Officer of the U.S. Army, and Maj. Gen. Robert Linhard, Director of Plans, also Deputy Chief of Staff for the Air Force.

Admiral West.

STATEMENT OF REAR ADM. RICHARD D. WEST, ACTING DIRECTOR, BALLISTIC MISSILE DEFENSE ORGANIZATION

Admiral WEST. Sir, I would like to make a short opening statement.

Mr. Chairman and members of the committee, it is my privilege to appear before you today to testify on the Department's National Missile Defense program. Before I begin, I would like to offer my prepared statement for the record.

Mr. WELDON. Without objection.

Admiral WEST. In response to the evolving ballistic missile threat, the NMD program has been elevated from a technology development effort to a deployment readiness program. A joint program office is being established under BMDO, with a charter to develop an NMD system for possible future deployment and to improve program execution. With me today is the first Joint Program Office [JPO] program manager, Colonel Dave McNierney, U.S. Air Force.

The mission of the ballistic missile defense requires a joint service approach. In particular, JPO is the right way to proceed with development and acquisition of the NMD system. It means that BMDO and the JPO will perform critical analyses to determine the appropriate technical solution to the NMD challenge. At the same time, we will continue to rely on the acquisition and technical expertise of the services to execute key NMD element programs.

Congress and the American people deserve to have the joint NMD program presented in a clear and understandable fashion. Therefore, it is important to put the NMD program in the proper

perspective, including the NMD architecture options, deployment time lines, program schedules and costs.

Because of the concern about the emergence of a ballistic missile threat to the United States sooner than the intelligence community was projecting, in late 1994, BMDO commissioned a Tiger Team study to identify feasible and effective architectural alternatives that could be deployed on a relatively short time line. Both the U.S. Army and the U.S. Air Force submitted architecture options as part of this study

This team estimated about 4 years to emergency deployment and described opportunities and associated challenges to deploy an interim NMD capability to deal with emerging Third World threats to the U.S. territory. The Tiger Team solutions were termed "emergency response options."

Early in calendar year 1995, the Department developed three NMD program options. These included an enhanced national missile defense baseline program, an emergency response option, and an enhanced national missile defense technology program. The emergency response option included the Air Force and Army proposals. The enhanced NMD technology options would have put more emphasis on longer-term technologies such as directed energy weapons. The Department chose the enhanced NMD baseline program, which became the joint NMD 3-plus-3 program.

The Army and Air Force emergency response proposals are similar to the Department's 3-plus-3 program in that they use the same fundamental building blocks—ground-based interceptors, ground-based radars, updated early warning radars, and the associated battle management, command and control and communications systems.

The differences appear in the specific design of these elements, their availability, and the way they are eventually combined architecturally.

It is important for Congress to understand these potential NMD architectures. Furthermore, I think it is important for Congress to be aware of the operational concepts, treaty implications and schedule and cost issues related to these architectures. These issues were addressed in Secretary White's June 5 response to Representative Spratt. My prepared statement also touches on these issues.

Given the projected threat and the maturity of the NMD technology, I strongly endorse the Department's 3-plus-3 program strategy. I think it is the most prudent course of action. Following 3 more years of system development, we will reach a point where a decision can be made to deploy an NMD system if the threat warrants. If the threat does not warrant deployment, we will continue development and refine the elements of that system that could be deployed quickly in response to an emerging threat.

It is important to keep in mind that the Department's 3-plus-3 program had the same genesis in the BMDO Tiger Team study as the services' emergency response architectures. As the 3-plus-3 program developed, we incorporated the strongest features of all these proposals. The joint 3-plus-3 program presents a reasonable approach that balances speed of deployment with improved defensive capability against a broader spectrum of potential threats.

As it is currently structured, the 3-plus-3 program provides the capability to deploy with an intelligence operations center [IOC] in 2003, the date Congress desires. At this time, the specific deployment architecture is not an issue which must be decided. What is needed now is program stability.

Producing concrete building blocks for a system of this complexity in 3 years is a significant challenge. We need to focus our attention and resources. I urge you to support the Department's joint NMD program and to provide sufficient resources to complete the deployment readiness phase of the 3-plus-3 program, which will prepare us to defend all of America against limited missile attacks by 2003.

Mr. Chairman, that concludes my opening remarks, and I stand ready to answer your questions.

Mr. WELDON. Thank you, Admiral West.

[The prepared statement of Admiral West follows:]

Statement of

Rear Admiral Richard D. West, USN

Director (Acting)

Ballistic Missile Defense Organization

before the

Subcommittees on Research & Development and

Military Procurement

Committee on National Security

House of Representatives

June 18, 1996

Embargoed Until
Released by
Committee on National Security

Biography

Office of External Affairs, Ballistic Missile Defense Organization
Washington, D.C. 20301-7100 (703) 695-8743

Rear Admiral Richard D. West
United States Navy

Rear Admiral Richard (Dick) West is the deputy director for the Ballistic Missile Defense Organization, Department of Defense, Pentagon, Washington, D.C.

Admiral West was raised in the Finger Lakes region of New York state and graduated from the University of Rochester in 1965 receiving his commission through the ROTC program. Rear Admiral West holds masters degrees in management and in national security and strategic studies.

His initial sea tour was onboard the USS WASP (CVS 18) homeported in Boston, Mass. After leaving the USS WASP in 1968, he received riverine training and reported as executive officer of the riverine support ship USS HARNETT COUNTY (AGP 821), Republic of Vietnam. In 1970, he graduated from Destroyer School, Newport, R.I., and reported as weapons officer onboard the USS CHARLES F. ADAMS (DDG 2) homeported in Mayport, Fla. He served on the "Charlie Deuce" from 1971 until early 1975 when he transferred to commander, Operational Test and Evaluation Force (OPTEVFOR), Norfolk, Va.

At OPTEVFOR, Admiral West was the Navy's Operational Test director for the joint Navy/Air Force cruise missile program "Tomahawk." In 1979, he reported as commanding officer of the diving and salvage ship USS OPPORTUNE (ARS 41), Little Creek, Va. In 1983 he was assigned to the Pentagon on the staff of the chief of Naval Operations, deputy for Plans, Policy and Operations (OP-06). From 1984 to 1986, Admiral West was the commanding officer of the guided missile frigate USS MCINERNEY (FFG 8), homeported in Mayport, Fla., deploying to the Persian Gulf during the "Tanker War." After a year of studies at the Naval War College in Newport, R.I., he reported to CINCSOUTH, Naples, Italy, as deputy assistant chief of staff for Operations in 1987.

In October 1989, Admiral West reported as commanding officer of the guided missile cruiser USS LEAHY (CG 16) homeported in San Diego, Calif. During his tour, LEAHY was the senior host ship for the historic Soviet Navy visit to San Diego in 1990 and made two overseas deployments, one in support of Operation Desert Storm. Admiral West returned to Newport in June 1992 and assumed command of the Surface Warfare Officers School Command. He reported to the Navy staff in Washington in July 1993. Admiral West was assigned to BMDO in November 1993 as the deputy for Acquisition/Theater Missile Defense where he was responsible for all joint DoD theater ballistic missile defense activities. In January 1996 Admiral West moved to the assistant director position for BMDO and assumed his present position in May 1996.

He was selected for the rank of rear admiral in January 1993.

His personal awards and decorations include the Defense Superior Service Medal, Legion of Merit with three awards, Meritorious Service Medal, Navy Commendation Medal and various service and campaign medals.

Rear Admiral West and his wife Bernadine, also from Port Byron, N.Y., have three children, Kimberly, Jennifer and Benjamin.

(Current as of May 1996)

Mr. Chairmen, and Members of the Committee, it is my privilege to appear before you today to testify on the Department's National Missile Defense (NMD) program and the Military Services' emergency response options.

It is important to put the NMD program in the proper perspective, including various NMD architectures, deployment timelines, program schedules and estimated costs. Congress and the American people deserve to have the NMD program presented to them in a clear and understandable fashion.

Because of concerns about the emergence of a ballistic missile threat to the United States sooner than the Intelligence Community projections at that time, in late 1994, the Ballistic Missile Defense Organization (BMDO) commissioned a Tiger Team Study to identify feasible and effective architectural alternatives that could be deployed on a very short timeline. Both the Army and Air Force proposed architecture options were developed as a part of that study. The Team estimated time scales of approximately four years to deployment and described several opportunities and associated challenges to deploy an interim NMD capability to deal with rudimentary Third World threats to the United States.

The Army and Air Force emergency response architectures that could be deployed within the next few years, ***should the Nation face a ballistic missile threat sooner than anticipated***, do not represent NMD programs. Instead, they are contingencies which would be considered for execution in the event of a clear and present danger to the Nation's security.

Early in calendar year 1995, the Department developed a set of NMD program options. These included an enhanced NMD baseline development effort, an emergency response system, and an enhanced NMD technology program. The enhanced NMD baseline program became the Department's 3 plus 3 program. The emergency response system program included the Air Force and Army options. The enhanced NMD technology program would have focused more emphasis on longer-term NMD technologies, such as directed energy weapons.

U.S. Air Force Emergency Response Architecture. The Air Force recommendation consists of an early deployment option, should a national emergency require fielding an NMD system before the 2003 timeframe. Building upon the existing Minuteman intercontinental ballistic missile infrastructure, this architecture would deploy 20 Minuteman missiles equipped with kinetic energy kill vehicles in existing silos at Grand Forks AFB, North Dakota. A network of upgraded early warning radars would support the interceptors. The Air Force projects that such an architecture would cost about $2.5 billion and could be deployed in about four years. However, my predecessor, LTG O'Neill assessed the Air Force cost estimate to be

preliminary. In particular, LTG O'Neill assessed the Air Force cost of the kinetic kill vehicle was underestimated by approximately a factor of five.

U.S. Army Emergency Response Architecture. The Army responded to the emergency deployment challenge by proposing a booster which combines existing commercial booster stages to launch the kill vehicle. This kill vehicle is already under development. In order to enhance radar coverage, the Army proposes to augment early warning radars and utilize a ground-based radar (GBR) that uses technology adapted from the theater missile defense Theater High Altitude Area Defense (THAAD) GBR. The Army estimates that this emergency deployment option could be executed for approximately $3.5 to $5 billion. This Army estimate includes development, testing, production, and fielding of a system which could be operational in slightly more than four years. The Army proposal basically accelerates an architecture similar to the Department's 3 plus 3 NMD system. I would have to caveat the Army schedule estimate as riskier than other approaches, since the architecture does not take full advantage of existing hardware.

The Army and Air Force have described NMD options which could provide a limited capability against simple, rapidly-emergent threats somewhat earlier than the 3 plus 3 system. Although the two Services affirm that their respective systems could be deployed at a somewhat lower cost than the 3 plus 3 system, I would remind the Committee that Deputy Secretary White, in his June 5 letter to Representative Spratt, expressed concern about the fidelity of those cost estimates. He stated, "These cost estimates have important omissions and may be substantially understated." More importantly, although these options should be considered in the context of a national emergency, they do not include many of the features normally required when developing and acquiring military weapons systems. In developing the 3 plus 3 program, the Department has sought to capture the strongest features of each proposal. Therefore, the 3 plus 3 program represents a reasonable approach which balances speed of deployment (and its attendant schedule and cost risk) with a more optimum defensive capability against a broader spectrum of potential threats.

The Department of Defense 3 plus 3 NMD Program. In response to the evolving ballistic missile threat, the NMD program has been elevated from a technology development effort to a Deployment Readiness Program. A Joint Program Office is being established under BMDO with a charter to develop an NMD system for possible future deployment. The Department of Defense has also designated NMD as a Major Defense Acquisition Program (MDAP) to ensure that it receives an appropriate level of management attention and oversight.

The mission of the NMD system under development is to defend against an ICBM attack consisting of several missiles launched at the United States from a rogue nation or a very small, accidental launch from more nuclear capable states. The system development is scheduled for completion within three years with an integrated system test conducted by the end of 1999. The integrated system test will demonstrate the NMD system's capabilities. The decision to deploy this system will be deferred until after a successful demonstration and the

validation of a threat. If a decision to deploy were made in 2000, with additional funding the system could then achieve operational capability in another three years, i.e., by the end of 2003. If a decision to deploy is not made in 2000, the program will continue to improve the NMD deployment readiness posture by advancing the technology of each element and adding new elements, while maintaining the capability to deploy the system within three years of a decision.

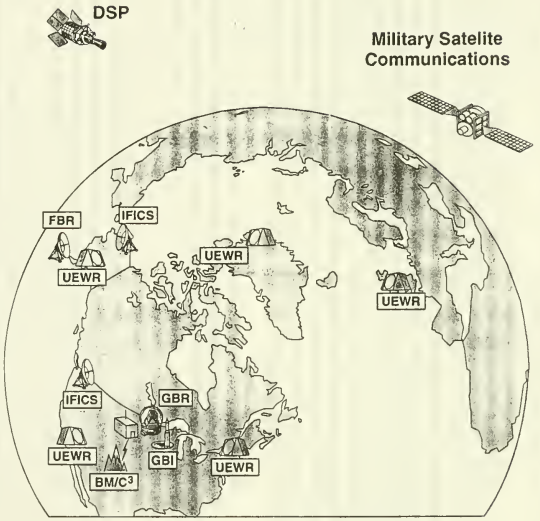
NMD Architecture. A National Missile Defense architecture requires systems called "elements" to perform a number of key functions during a ballistic missile defense engagement.

There are several functions performed by the elements in a typical ballistic missile defense engagement: First, an ***Early Warning Sensor*** element detects the launch of one or more ballistic missiles and forms initial estimates of the missiles' tracks and targets. These estimates are then passed to the ***Battle Management, Command, Control, and Communications System (BM/C3)*** element. This system notifies the Command Center of the launch and provides data supporting the time-critical decision on whether the launch is hostile. The ***BM/C3*** element directs other ***Sensor*** elements to continue the tracking and threat identification function throughout the missile's trajectory. These elements provide data of two primary types: accurate tracking data to provide weapon engagement information; and detailed threat signature data to distinguish among warheads and other objects in the threat. The ***BM/C3*** element processes these data and continually relays current information to the human-in-control. Under human control, the ***BM/C3*** element provides specific threat and trajectory information to one or more ballistic missile defense ***Weapon*** elements and tasks the appropriate element to engage and destroy the threatening warheads. The ***Sensor*** elements continue to provide improved observational data in support of ongoing engagements. Following each engagement, the ***Sensor*** elements observe the results of the engagement, providing kill assessment data with which to assess its success or failure.

The initial NMD deployment is being designed to defend all 50 states from a single, central United States site. The Ground Based Interceptors and a Ground Based Radar will be located at Grand Forks, North Dakota, which serves as the single United States site permitted under the ABM Treaty. Since space-based sensors are not likely to be available if this architecture is deployed by 2003, the architecture includes the option to utilize forward-based radars, whose location would be contingent upon the specific Third-World threat against which the system is deployed.

These elements are depicted as they might be deployed for a notional single-site architecture in Figure 1. Quantities and other deployment data for such a single-site deployment are presented in Table 1. The Early Warning satellites would detect the launch of one or more threat missiles and track their bright infrared plumes until booster burnout. They would then pass an estimate of the threat trajectories via the BM/C3 system to the command center, so that the decision maker can authorize the defense to engage the incoming threatening

NMD 3+3 ARCHITECTURE



- Deployable In 3 Years After A Potential Deployment Decision In 2000. . . IOC 2003
- Components
  - Single Site In North Dakota
  - 100 Ground Based Interceptors (GBI)
  - 1 Ground Based Radar (GBR)
  - Upgrade Early Warning Radar (UEWR)
  - Adjunct Forward Based Radar (FBR) In Alaska
  - In Flight Interceptor Communications System (IFICS)
  - BM/C^3

Figure 1

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warheads. The Early Warning Radars and any other forward based radars, if present, would gather tracking and threat assessment data to support commit of the interceptor and to provide guidance updates for the interceptor via the BM/C3 upon launch. Following weapon release authority, and upon command, one or more interceptors would be launched to engage the threat. Depending on the trajectory of the threat and the specifics of the defense deployment, the BM/C3 system would process the GBR and the other radar systems data to provide further threat data to the interceptor during flight. This activity would support discrimination of warheads from penetration aids and provide better interceptor guidance against the targets. As the interceptor approaches the target, it would acquire the target objects via their infrared signatures with its on-board sensor, select a target from external and internal data, and be guided to a direct high-speed collision by its own computers and propulsion systems. The radars would continue to take data throughout the defense engagement in order to perform kill assessment. For some deployments and threats, there may be sufficient battle space to allow time for multiple waves of interceptors.

The NMD Systems Engineer, in conjunction with the Element engineering effort, will play a crucial role in providing the necessary integration and orderly development of an NMD System which meets the user's requirements. The NMD Systems Engineer must ensure the development of the optimum system which meets all requirements and provides the proper balance of system performance, life cycle cost, development schedule, and risk. Much of the technology which constitutes the individual elements of the NMD program is mature. The largest challenge is the integration of all the elements as a system. This challenge is being worked aggressively and is the centerpiece of the 3 plus 3 strategy. The Systems Engineering and Integration contractor is on track to complete the Systems Requirements Review (SRR) in August 1996. Results from this review could result in modifications to the NMD architecture and a rebalancing of the element requirements to meet the system performance thresholds. Such modifications, if required, could result in a cost increase and a possible schedule delay.

The development program, to be executed over the next three years, will comply with the ABM Treaty. Should a deployment decision be made after three years, the system components that are ultimately fielded might comply with the current treaty, or might require modification of the Treaty. Such treaty decisions will depend upon the requirements of the threat situation.

NMD System Performance. This system would provide excellent protection of the U.S. for small numbers of simple threats (e.g., a few warheads from a rogue nation). It would also have some capability against a small accidental launch from more nuclear capable states. However, if the number of threats increases or the complexity of the threats increases, then this basic system is likely to provide poor protection of the U.S. Such poor protection is partly a result of a lack of sufficient discrimination capability against complex threats, which in turn will cause the interceptor inventory to be depleted by shooting at warhead decoys, and thus allow some real warheads to penetrate the defense. This deficiency could be significantly mitigated with the introduction of the U.S. Air Force Space and Missile Tracking System

(SMTS). It is important to note that the system is *not* designed to protect against an unauthorized launch which might contain a large number of warheads (e.g., a full load of warheads from an SSBN).

NMD System Costs. The estimated costs to develop, produce and deploy a notional single-site system, as described above, are presented in Table 2. Costs for development are estimated at about $2.5 billion, for a total program cost of about $10 billion to deploy. Since the NMD program has recently been designated a MDAP and is still in the process of developing the actual architecture for an NMD system, there is uncertainty associated with the costs listed in Table 2. For example, the actual booster selected for the NMD interceptor as well as the type and quantity of forward-based early warning radars, both of which will have significant impact on the total system costs, have yet to be determined. A more precise estimate of the actual costs will be available by the end of the year.

NMD System Elements

To perform the functions described above, BMDO is developing, testing, and integrating the five major components listed on Table 1. The following paragraphs describe their individual functions and status.

Ground-based Interceptor. The Ground Based Interceptor (GBI) and its associated components provide the "muscle" of the NMD system. The GBI mission is to engage high speed ballistic missile warheads in the midcourse (exoatmospheric) phase of their trajectories and destroy them by force of impact. The GBI consists of:

- o an intercept component called an exoatmospheric kill vehicle (EKV), which conducts the engagement,
- o a booster, which propels the interceptor toward the approximate location to engage a warhead, and
- o the ground command and launch equipment needed to fire the interceptor.

The GBI launches on a commit message from the Battle Management, Command, Control and Communications element and flies towards the target's predicted location. Aided by one or more in-flight target updates, the interceptor kill vehicle acquires the target cluster using on-board sensors. It then employs on-board target selection algorithms or a target object map obtained from the sensor systems in the architecture in order to determine which object is the proper target. The GBI adjusts its ballistic trajectory to collide with the target. Both the interceptor and the target are demolished as a result of the high kinetic energy impact of the collision.

Exoatmospheric Kinetic Kill Vehicle (EKV). The EKV is the intercept component of the Ground Based Interceptor. The EKV has its own sensors, propulsion, communications,

guidance, and computing, which perform the following functions:

- Its sensors acquire and track the objects in the threat and provide measurements that, when used with externally provided data, permit the selection of which object is to be engaged and support homing maneuvers including the selection of a lethal aim point.

- Its propulsion system changes the orientation of the interceptor, performs large-scale maneuvers to bring the vehicle to a position to engage the warhead, and conducts final, fine-scale maneuvers to destroy the target warhead upon impact.

- Its two-way communications system receives guidance information updates and transmits health and status data; and

- Its computers support the engagement targeting decisions and maneuvers.

The major EKV component is a multiple-waveband infrared seeker which allows the EKV to acquire and track targets. The seeker consists of a focal plane array(s) and a cryogenic cooling assembly at the end of an optical telescope. Supporting the seeker is supported by processing hardware and software which also support target acquisition, tracking, and discrimination.

Currently, two EKV contractor teams utilizing two different sensor approaches are integrating sensor hardware in preparation for two sensor flight experiments. These experiments will demonstrate for the first time that our EKV sensors can operate in the flight environment. The data collected by the sensors will be transmitted to the ground and used after the flight to validate discrimination software and define any changes required. The first EKV sensor flight test is currently scheduled for this Fall, with the second flight in early 1997.

The EKV contractors have also begun to procure kill-vehicle hardware for intercept flights scheduled for FY98. As the components arrive from the manufacturers, they will be integrated into systems and tested. Current plans include hardware-in-the-loop (HWIL) testing of the seekers and electronics, cold chamber testing and calibration of the seekers, and strap-down testing of the Divert and Attitude Control System. The assembled EKVs will be integrated with the Payload Launch Vehicle (PLV), a test surrogate for a dedicated booster. Additional HWIL tests will be conducted prior to flight testing to ensure that the air vehicle (EKV integrated with booster) will perform as intended. A down selection between the contractors is scheduled for FY1998 although it is also possible that both EKV concepts will be retained past that time.

GBI Booster: The Ground Based Interceptor program will either develop a new booster or modify an existing booster which can satisfy both National Missile Defense coverage and time line requirements. To achieve 50-state coverage from a single central-United States interceptor

site, interceptor velocities of at least 7.2 km/sec must be achieved. Until such a booster has been selected, GBI tests are being supported by a Payload Launch Vehicle with significantly less boost velocity. When the full-capability booster has been tested to ensure proper operation and payload deployment, it will replace the Payload Launch Vehicle.

The GBI booster will launch the EKV toward an intercept point in space estimated from available sensor data at the time of launch. While on the ground, the interceptor will be housed in a launcher along with its associated built-in test equipment and environmental support equipment. In order to increase reliability and reduce life cycle costs, the GBI is designed to remain dormant until a ballistic missile attack occurs.

There are three candidate booster approaches being considered:

- *Combinations of existing missile stages*. A number of combinations of existing missile stages could provide the required performance. These candidates could be configured to provide booster burn times compatible with National Missile Defense engagement requirements, and burnout velocities compatible with 50-state coverage. All such configurations would feature demonstrated producibility in the quantities needed.

- *Development of a new booster*. This candidate could be based on either single stage or multiple stage technology. The advantage of new booster development is that the booster performance can be optimized for GBI size (length and/or volume) and burn time requirements.

- *Reconfigure Minuteman boosters*. Major advantages include the use of existing hardware and an infrastructure which could be adapted to defensive use, as well as the ability to cover all 50 states from a single site.

Initiation of the decision and development of dedicated GBI booster and launch equipment will begin in Fiscal Year 1998. It is currently planned that the NMD Joint Program Office will issue one or more requests for information for GBI element integration and/or booster development in the near future.

Until the dedicated booster is available, flight tests will be conducted using the Payload Launch Vehicle. The PLV consists of the second and third stages of retired Minuteman II boosters, modified as necessary to function as first and second stages. PLV performance is adequate for testing, but is insufficient for single-site coverage of all 50 states.

Command and Launch Equipment: The Command and Launch Equipment consists of the hardware and software for BM/C3 interface, human-in-control oversight, interceptor storage (silos), launch and readiness functions. For a deployed system, Peculiar Support Equipment such as test equipment, specialized software support, and transportation equipment will also be

acquired to fully support the integrated logistics support functions.

NMD Site Radar: As a primary fire control sensor for the National Missile Defense, the Ground Based Radar (GBR) would perform surveillance, acquisition, track, discrimination, fire control support, and kill assessment. Before the launch of an interceptor, the radar would search for threat objects, either autonomously or in response to information from other sensors on where to look. After acquiring one or more threat objects, the radar would track them, estimate their trajectory parameters, and, based on threat-object signatures, attempt to classify them into categories such as "warheads" or "decoys." When the available information becomes sufficient, then interceptors would be launched. During interceptor flight, the radar would continue to track the target to obtain improved target-trajectory and target-signature data. These data would be used to redirect the interceptor prior to its intercept attempt. Following the engagement, the radar would continue to collect data for assessing the intercept and the destruction of the target.

The NMD Ground Based Radar will be a phased array X-band radar with a radiating surface about 12 m in diameter. In its full-power configuration, it will have an acquisition range of 4,000 km or more against typical warheads. The radar will be built with a degree of hardening against nuclear effects, particularly against high-altitude electromagnetic pulse. Environmental conditions, including snow and ice and other natural or manmade environments unique to the deployment locale, will also affect the design of the radar. The prototype version designed for use in the testing program will have reduced range (2000 km or more) and reduced levels of nuclear effects hardening. The prototype radar can be modified, if needed, to give it objective-level performance.

The NMD Ground Based Radar prototype is being procured through a "Family of Radars" acquisition approach which emphasizes the commonality of hardware and software components that satisfy both theater-defense and national-defense radar requirements. Significant cost savings will result from this approach. The contract for the prototype ground based radar was executed in the first quarter of Fiscal Year 1996. The program builds on the ongoing development of the theater version of the ground based radar. It includes some aspects specific to the national missile defense radar, such as: development of computer software for operating the radar and evaluating its signals; simulations that test the hardware and software together; and support of integration testing with the other NMD elements. The prototype radar will be installed at the NMD system test range at Kwajalein atoll in the Pacific in time for use in radar tests and the Integrated System Test in 1999.

Upgraded Early Warning Radars (UEWR): Upgrades to America's Early Warning Radar network will provide existing forward-based attack warning system the capability to augment the operation of an NMD system. The specific advantage of utilizing upgraded early warning radars in the NMD architecture is the ability to be modified on a very short schedule. The cost of modifying existing radars is significantly less than the cost of building and deploying new radars.

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The Upgraded Early Warning Radars (UEWRs) will detect, track, and count the individual objects in a ballistic missile attack early in its trajectory. Their data will extend the detection capability of the ground based radars, by telling them accurately where to look. This data will also improve the performance of the ground based interceptors by permitting them to be launched early and to operate in a larger region of space. The increased battle space will support earlier intercept opportunities and, potentially, more intercept attempts per attacking warhead.

America's early warning radars are large, fixed, phased array surveillance radars used to detect and track ballistic missiles directed toward the United States. The Upgraded Early Warning Radars operate by continually scanning the horizon in the direction from which potential attacks would come. However, an alert from the Early Warning Satellite systems would improve their performance.

In their current configurations, these radars can detect and develop approximate impact location data for objects associated with a missile launch, such as the last missile stage. This information is insufficient for use by a ballistic missile defense system for two reasons. First, it does not track each missile long enough before returning to the search mode. Second, it does not permit the derivation of sufficiently accurate trajectory parameters to support intercepts. Upgrades in the system's software and modest changes to the hardware are needed to address these shortfalls and to make the data obtained available to the NMD BM/C3 system.

A program is about to begin which would prepare and demonstrate the needed upgrades to the existing early warning radars. Depending on the anticipated threat (east coast or west coast) at the time of a defense deployment decision, the appropriate BMEWS and/or PAVE PAWS radars will be upgraded for inclusion in the NMD architecture. If needed, other existing forward-based radars (such as Cobra Dane or HAVE STARE) could also be used to support the NMD system.

However, there are significant risks involved in the UEWR program. For example, the radars are old, and spare parts are difficult to obtain. Their long term availability is by no means assured. Moreover, these radars are costly to operate and maintain. A viable operations and maintenance program will have to be agreed upon if these systems are to remain part of the architecture. Their removal would increase risk and reduce system performance at least until the SMTS system becomes operational.

Forward Deployed Radars: Forward basing of a ground based radar places the radar in a position to obtain accurate data from early parts of an ICBM's trajectory. The advanced technology associated with X-band radars provides high angular resolution, thereby permitting effective performance against closely spaced threat objects. Together these radar attributes provide for early and accurate target-tracking and signature data, thus permitting earlier launch of defense interceptors and a greater battle space within which they can operate. The overall defense performance is therefore maximized.

Battle Management, Command, Control and Communications (BM/C3): Through the BM/C3 element, the Commander in Chief of the North America Air Defense Command would control and operate the system, and the elements would function together as an integrated system.

The BM/C3 element is the "brains" of the NMD system. It has five main functions:

- It conveys information to the operational command and control system, and provides decision aids to support essential human-in-control decisions;
- It fuses data from different sensors;
- It develops plans for engagement and battle execution;
- It relays command and control decisions and directives to the defense system, including weapon release, to implement a successful defense of the United States against ballistic missiles; and
- It is the vehicle for information transfer and processing among the elements of the defense system.

If it is determined by the Command Authorities that a ballistic missile attack upon the United States is in progress, available space-based and ground-based surveillance and warning system assets would be queried for early track correlation data and impact point prediction. Under human direction, readiness postures would be upgraded to ensure the smooth transition of National Missile Defense assets from peacetime to wartime operating modes; and automated BM/C3 decision aid software would develop, as a result of a range of pre-determined response options, a battle plan that fully embodies the Commander's operational strategy.

The developed operational battle plan would include sets of operating thresholds and strategies which control the selected NMD weapons, sensors and communications. The BM/C3 element's engagement planning software would apply these rules to the threat data from the sensors and would generate plans for aiming and using the sensors, weapons, and communications links. During the battle these plans would be adjusted as new information becomes available and as the early engagements take place.

The nature of the BM/C3 operational plan requires that the human commander monitor and evaluate the threat and the NMD system's performance. The BM/C3 system will provide the human in control with the capability to change the operational plan in real time to improve performance by adjusting his/her use of NMD resources.

The BM/C3 element supports the user with extensive decision support systems, displays, and situation awareness information. It correlates the best available intelligence

information, current NMD system status, and data from all sensors and sensor systems. In this way, it supplies the means to plan, select, and adjust missions and courses of action; and it provides the vehicle to disseminate Weapons Release and other Command decisions to the NMD system elements.

The communications component of the BM/C3 element has two sub-components:

- o The Battle Management, Command, Control and Communications Network to convey information among the system's elements and sites, via the appropriate interfaces, and to external systems; and

- o The In-Flight Interceptor Communications System (IFICS) that arranges for information flow to and from the in-flight interceptors.

An evolutionary development approach based on the "build-a-little, test-a-little" philosophy has been adopted for the BM/C3 element. This approach is appropriate for systems with heavy warfighter interfaces because such systems require significant user involvement and feedback during requirements definition and also in the implementation phase. This evolutionary approach capitalizes on current technology, and therefore reduces cost, schedule, and performance risks to the BM/C3 element. Furthermore, this approach will leverage off existing BMDO and Service resources and utilize proven Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) software wherever possible.

In Fiscal Year 1995, BMDO awarded a Battle Management, Command, Control and Communications/System Engineering and Integration Contract for the implementation of BM/C3. The contractor has defined the BM/C3 element in terms of its critical performance requirements and key test parameters.

Space And Missile Tracking System (SMTS): In addition to the elements being developed by BMDO, future NMD systems will significantly be enhanced by the sensing capability of the Space and Missile Tracking System (SMTS). This system, developed by the Air Force as part of the Space-based Infrared System (SBIRS), has been allocated those mission requirements that are best met by a low-altitude system with long-wavelength infrared sensors, primarily the ballistic missile defense mission. The unique orbit and sensors on SMTS will also provide valuable technical intelligence and battle-space characterization data.

In support of defense of the United States against a ballistic missile attack, SMTS would support the maximum possible defended area from whatever configuration of ground-based interceptor sites is available at the time of the attack. The SMTS constellation of sensors and satellites will acquire and track ballistic missiles throughout their trajectories. Unlike the DSP and SBIRS High satellites, SMTS will be able to continue tracking the warheads after the missile booster stages all burn out and the warheads are deployed. This information provides the earliest possible trajectory estimate of sufficient quality to launch interceptors for a

midcourse intercept. By providing this over-the-horizon precision tracking data to the NMD system, the interceptors can be fired before the missiles come within range of the ground based radars at the defense sites. This maximization of their battle space:

- o increases the probability of defeating the threat by providing the maximum number of opportunities to shoot at each incoming warhead;
- o maximizes the area that can be defended for any given interceptor deployment by permitting the interceptors to travel the farthest from the deployment sites; and
- o allows the warheads to be destroyed as far as possible from the area defended.

Not only is it beneficial to get the interceptors in flight as early as possible, but once in flight, the interceptors must be supported with tracking updates and identification information on the correct target. The lethal ballistic missile warheads must be discriminated from associated debris, deployment hardware, and penetration aids, based on their emission and/or radar-reflection properties. The sensors on SMTS provide discrimination data that complement the radar data; together they can determine optimally which objects are threatening and which can be ignored. Because SMTS employs the same type of sensing that interceptors use, the information it which provides to the NMD system is less ambiguous than that provided by radars alone and therefore offers improved performance against threat decoys.

Each SMTS satellite will carry a suite of passive sensors that will provide surveillance, tracking, and discrimination data, including short-, medium-, and long-wavelength infrared sensors, which detect objects by their heat emissions, and visible light sensors that use scattered sunlight. These sensors, which can be instructed to look in different directions independently of each other, will provide global (below-the-horizon and above-the-horizon) coverage of ballistic missiles in their boost, post-boost, and midcourse phases. SMTS can detect and track objects at very long distances by observing them against the cold background of space.

Conclusion. It is imperative for Congress to review these potential NMD architectures. Furthermore, it is important for Congress to be aware of the operational concepts, treaty implications, and schedule and cost issues related to all NMD architectures in order to judge how best to proceed.

Given the projected threat and the maturity of NMD technology, I strongly endorse the Department's NMD strategy as embodied in the 3 plus 3 program. It is a prudent course of action. Following three more years of system development, we will reach a point where a decision can be made to deploy an NMD system, ***if the threat warrants***. If the threat does not warrant deployment, we will be prepared to continue development of a system that could still be deployed quickly in response to a threat, but would also ensure a more effective, lower risk defensive system. The 3 plus 3 program is designed with flexibility to permit -- with some

increase in risk -- its acceleration, if the threat warrants and additional resources are applied. As it is currently structured, the 3 plus 3 program provides the capability to deploy with an IOC in 2003, the date which Congress has desired.

It is important to reaffirm that the Department's 3 plus 3 program had the same genesis in the BMDO Tiger Team study as the Service's emergency response architectures. As the 3 plus 3 program developed, we incorporated the strongest features of all proposals. The 3 plus 3 program represents a reasonable approach that balances speed of deployment with a more optimum defensive capability against a broader spectrum of potential threats. We have determined thus far that the 3 plus 3 program is the most prudent response available to meet an emerging threat.

In closing, I want to stress that the Air Force and Army remain critical members of our Ballistic Missile Defense team and are vigorously and efficiently developing those portions of our 3 plus 3 architecture to which they are assigned. While it may appear that there are differing views on NMD, it is important to note that the fundamental architecture is the same to all the proposals. The differences lie in the specific designs of that architecture and the timelines under which a system could be deployed. Even here the difference is a matter of about two years.

At this time the specific deployment architecture is not an issue which must be decided. What is needed is program stability. Developing the building blocks for a system of this complexity within three years presents a significant challenge -- we cannot afford to keep starting over to develop something new. I urge you to support the Department's NMD program and to provide sufficient resources to complete the deployment readiness phase of the 3 plus 3 program. Then, if the emerging missile threat requires deployment, we will be prepared to defend all 50 states against limited missile attacks by 2003.

Table 1
NMD SYSTEM "3+3" DESCRIPTION

SYSTEM ELEMENT	
Interceptor	
Initial Operational Capability	20
Full Operational Capability	100
Deployment Location	Grand Forks, ND
Deployment Configuration	Silo
V_{BO}	7.2 km/sec
Site Radar	
Initial Operational Capability	1
Full Operational Capability	1
Deployment Location	Grand Forks, ND
Type	X-band phased array
Upgraded Early Warning Radars	
Initial Operational Capability	5
Full Operational Capability	5
Deployment location(s)	Clear, Thule, Fylingdales, Beale & Otis
Forward Deployed Radar(s)	
Initial Operational Capability	1
Full Operational Capability	1
Deployment Location	Shemya, AK or Bangor, ME
Type	X-band (dish or phased array TBD)
BM/C3	
In Flight Interceptor Communications Quantity	6-12
IFICS Locations	TBD
BM/C3 Approach	Centralized

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Table 2 NMD 3+3 COST ESTIMATES	
	Then-Year Dollars (billions)
Development	$2.5 - 2.6
Production/Procurement	$4.5 - 5.0
Deployment	$1.0 - 1.2
Testing	$1.0 - 1.2
TOTAL	$9.0 - 10.0

Mr. WELDON. General Garner.

STATEMENT OF LT. GEN. JAY M. GARNER, U.S. ARMY SPACE AND STRATEGIC DEFENSE COMMAND

General GARNER. Sir, I prepared a statement and submitted it for the record, so just let me simply say that I want to thank you and the members of the committee for the chance to come here and discuss with you the Army's national missile defense program, and I look forward to your questions.

Thank you very much.

Mr. WELDON. Thank you, general.

[The prepared statement of General Garner follows:]

STATEMENT OF

LIEUTENANT GENERAL JAY M. GARNER

COMMANDING GENERAL

US ARMY SPACE AND STRATEGIC DEFENSE COMMAND

BEFORE THE SUBCOMMITTEES ON

MILITARY RESEARCH AND DEVELOPMENT AND

MILITARY PROCUREMENT

COMMITTEE ON NATIONAL SECURITY

HOUSE OF REPRESENTATIVES

SECOND SESSION OF THE 104TH CONGRESS

NEAR-TERM NATIONAL MISSILE DEFENSE DEPLOYMENT OPTIONS

18 JUNE 1996

NOT FOR PUBLICATION

UNTIL RELEASED BY THE

HOUSE NATIONAL SECURITY COMMITTEE

Thank you, Mr. Chairman and Members of the Committee, for the opportunity to appear at this hearing to discuss the Army's missile defense program. As Commander, U.S. Army Space and Strategic Defense Command, I have the distinct privilege of directing the activities of: the U.S. Army Space Command, Colorado Springs, CO--the Army User for National Missile Defense, the Missile Defense and Space Technology Center, Huntsville, AL--the Army's development center for Missile Defense technologies; the Kwajalein Missile Range in the Marshall Islands--the Nation's only full service test range for Ballistic Missile Defense systems; and the High Energy Laser Test Facility at White Sands, New Mexico-- the Nation's most powerful High Energy Laser in support of DoD laser research, development, test, and evaluation. COL(P) Dan Montgomery, the Army's Program Executive Officer for Missile Defense, oversees the development of both Theater and National Missile Defense systems for the Army.

As Commander, U.S. Army Space and Strategic Defense Command, I am charged with the responsibility to serve as the Army's focal point and advocate for Space, Theater, and National Missile Defense. Together, PEO-MD and I share a uniquely comprehensive view of the Army's role and responsibilities in Missile Defense. We welcome this opportunity to share our views with you and hope you will find them useful.

Now, let me focus on NMD which is why you asked us here today. First, let me make it clear that there is only one DoD NMD Program. This is the "3+3" Deployment Readiness

Program which develops and demonstrates the elements of an initial system over a 3 year period to enable an informed decision to deploy within 3 years thereafter. The Army continues to play a key role in the planning for and execution of this program. With BMDO funding and guidance, we are currently developing the Ground Based Interceptor (GBI), the Ground Based Radar (GBR), and the Site Battle Management/Command, Control, and Communications (Site BM/C3).

However, you specifically asked me to address near-term deployment options, which we had developed prior to the Department's "3+3" program decision. The Army's near-term deployment option takes full advantage of the past and on-going investments in the ground-based NMD elements cited above. The concept leverages the existing infrastructure at the U.S. Army Kwajalein Atoll (USAKA) for testing and potentially the infrastructure at the Grand Forks ABM site for deployment. It uses the BMDO-funded/Army-executed elements that are being designed specifically for the NMD mission to address the full spectrum of threats--including all of the existing threat types in the world today with growth potential to address even more sophisticated responsive threats should they emerge in the future. Our analysis to date shows that such a system could provide highly effective protection of all 50 states against limited attacks. The on-going test program will provide crucial information to assess performance capabilities and validate this analysis.

Although no Treaty Compliance assessments of any near-term deployment options have been conducted by OSD, I believe the Army's system option could be developed, tested, and deployed in a manner fully compliant with the ABM Treaty. The elements currently under

development by the Army that could be utilized in this concept undergo annual review by the OSD Compliance Review Group.

The Army's near-term deployment option is evolutionary in nature and would provide the foundation of the objective architecture. All of the elements are part of the objective architecture and the near-term system could be incrementally built upon as needed in response to threat evolution. That is, the investment in a near-term deployment that is on the path to the objective system would be fully utilized, not wasted.

The Army's principal near-term deployment option consists of an initial NMD System of 20 GBIs, a GBR, and associated BM/C3 deployed at a single-site within six years. This near-term NMD system would be supported by existing space-based sensors (e.g., DSP), advanced and upgraded early warning radars (EWRs), and upgraded command and control to support USCINCSPACE in the NMD mission. The initial system would be capable of interoperating with future space-based early warning and tracking systems such as the Space-Based Infrared System (both High and Low constellations) when they become available.

We have estimated the cost to develop, test, acquire, and deploy such a system to be about $5.2B. However, this cost estimate has not yet been submitted to OSD for validation. This includes the costs of 69 GBIs (20 to deploy, 12 to test, and 37 in the pipeline for spares and towards the growth to 100 deployed); the GBR at the site and a prototype GBR at USAKA for test; the Site and CINC BM/C3; 3 Advanced EWRs; upgrades to 2 existing EWRs; system

engineering and integration; test range, targets, and associated testing costs for 12 flights; and site design and construction including modifications of the 30 Spartan silos at Grand Forks.

The Army's other near-term deployment option would be a higher risk, quick response, or emergency, deployment that could be available within about four years as opposed to six. We have estimated the cost to develop, test, acquire, and deploy this option to be about $4.8B This estimate still requires OSD cost validation. This includes 66 GBIs (20 to deploy, 10 to test, and 36 in the pipeline for spares and towards the growth to 100 deployed); the GBR at the site and a prototype GBR at USAKA for test; the Site and CINC BM/C3; 3 Advanced EWRs; upgrades to 2 existing EWRs; system engineering and integration; test range, targets, and associated testing costs for 10 flights; and site design and construction including modifications of the 30 Spartan silos at Grand Forks.

The individual elements of the near-term deployment option are described below:

The GBI missile consists of an Exoatmospheric Kill Vehicle (EKV) on a two- or three-stage solid-rocket booster, which we believe industry can quickly and cost effectively fabricate using existing, commercially-available motors. The GBIs will ensure reliable body-to-body impact and destruction of ICBM reentry vehicles (RVs) during the midcourse flight regime. The EKV has a sensitive, long-range electro-optical sensor with an on-board discrimination capability that allows the GBI to be launched against a cluster of objects, designate, and intercept the lethal

object in a target complex. The EKV will have the capability to receive In-Flight Target Updates (IFTUs) and Target Object Maps (TOMs) generated by the BM/C3 from sensor data to enhance probability of target kill and overall system performance. The GBI element also includes the ground support equipment and command and launch equipment.

The GBR is a wide bandwidth, solid-state X-Band phased array radar sized for the NMD mission and capable of precision long-range detection, acquisition, tracking, and classification of strategic ballistic missile targets. It will also be capable of providing kill assessment data to the BM/C3. It uses the same solid-state transmit/receive modules that are being used in the THAAD radar and utilizes some common software and hardware. It will provide a substantially longer range than the THAAD radar to allow operation against strategic targets.

The BM/C3 will reside within the Cheyenne Mountain Complex (CMC) and at the initial NMD Site (collocated with GBI and GBR) with specified command and control functions allocated to each location (CINC and Site) and redundant capabilities existing at both locations. The Site BM/C3 will plan the engagements, manage the battle, perform kill assessment, and provide engagement information and results back to the CMC.

The near-term capability also includes upgrading two of the existing EWRs and deploying three new advanced EWRs (potentially in Alaska, Hawaii, and the Northeast US) to allow state vector data to be provided to CMC for cueing the NMD system. The advanced EWRs are X-band phased array radars; but for treaty compliance reasons, they are not the same configuration

as the GBR, will not be tested in an ABM mode, and will not be able to communicate to the interceptor in-flight. The advanced EWRs will be deployed on the periphery of the U.S. and will be oriented outward to perform early warning functions similar to the existing EWRs. This concept still requires review by the OSD Compliance Review Group.

In summary, there have been three sucessful National Missile Defense tests conducted. The Army has done all three. The Army has utilized its 40 years of ballistic missile defense expertise in developing near-term deployment options. The Army supports the department's "3+3" program and is ready to proceed as BMDO's executing agent for the ground based elements: GBIs, GBRs, and associated BMC3, or any emergency deployment option directed by DoD.

Again, thank you for this opportunity to appear before you. I'm ready to address your questions.

Mr. WELDON. General Linhard.

STATEMENT OF MAJ. GEN. ROBERT E. LINHARD, DIRECTOR OF PLANS, U.S. AIR FORCE

General LINHARD. Mr. Chairman, I am also honored to be here. I have a prepared statement which I would also like to submit for the record. I know you are interested in getting to questions, and I would be happy to contribute what I can to this process.

Thank you.

Mr. WELDON. Thank you. Your statement will be entered into the record.

[The prepared statement of General Linhard follows:]

Statement of
Major General Robert Linhard, USAF

Director of Plans
Headquarters, United States Air Force

before the

House National Security Committee
Subcommittees on Military Research and Development and Military Procurement

House of Representatives

18 June 1996

Subject: National Missile Defense

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UNTIL RELEASED BY THE
HOUSE NATIONAL SECURITY COMMITTEE

BIOGRAPHY

UNITED STATES AIR FORCE

Secretary of the Air Force
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Washington, D.C. 20330-1690

MAJOR GENERAL ROBERT E. LINHARD

Major General Robert E. Linhard is the director of plans, deputy chief of staff, plans and operations, Headquarters U.S. Air Force, Washington, D.C. He is responsible for the Headquarters Air Force position on unilateral and joint policy guidance, strategy and doctrine development and assessment, war and mobilization representative to the U.S. and Canada Permanent Joint Board on Defense and the U.S. national director for the Air Standardization Coordinating Committee.

The general was born Feb. 2, 1947, in the Bronx, N.Y. He earned a bachelor's degree and a master's degree in English from Fordham University. After receiving a commission in June 1968, he entered active duty in April 1969 as a TITAN II launch officer. He has been a Minuteman airborne missile launch officer, flying in EC-135s, an Air Staff training officer in the directorate of concepts, and a strategic force planner on the Joint Staff. He has worked on the White House National Security Council staff as a director of defense programs. He was appointed senior director and given a presidential commission as special assistant to President Ronald Reagan for nuclear issues and arms control. His responsibilities included U.S. and allied nuclear strategy, policy and programs, the safety and security of related U.S. and allied nuclear facilities, North American strategic defense issues, the strategic defense initiative, and U.S. nuclear and conventional arms control policy. The general participated in the Geneva, Reykjavik, Washington and Moscow U.S.-Soviet summit meetings. He co-chaired the U.S. delegation and negotiated the agreement establishing the U.S.-Soviet Nuclear Risk Reduction Centers. He also chaired the U.S. Arms Control Support Group that served on a day-to-day basis as the overall coordinating group for U.S. arms control policy. He has commanded the 57th Air Division at Minot Air Force Base, N.D., been deputy chief of staff for plans and resources, Headquarters Strategic Air Command, and director, U.S. Strategic Command Provisional Headquarters, Offutt Air Force Base, Neb. He came back to the Pentagon from serving as director, plans and policy, J-5, U.S. Strategic Command.

General Linhard is married to the former Joanne Blayne of Bedford, Ohio. He has a daughter, Jennifer.

EDUCATION:

1968 Bachelor of arts degree in English, Fordham University, N.Y.
1969 Master of arts degree in English, Fordham University, N.Y.
1973 Master of arts degree in public administration, University of Oklahoma, Norman
1973 Squadron Officer School, Maxwell Air Force Base, Ala.
1974 Air Command and Staff College, Maxwell Air Force Base, Ala.
1975 Master of arts degree in business management, University of Northern Colorado, Greely
1979 Master of arts degree in political science, Georgetown University, Washington, D.C.

ASSIGNMENTS:

1. April 1969 - September 1970, TITAN II missile launch officer, 308th Strategic Missile Wing, Little Rock Air Force Base, Ark.
2. October 1970 - September 1973, training, standardization and evaluation crew member, 308th Strategic Missile Wing, Little Rock Air Force Base, Ark.
3. September 1973 - August 1975, Minuteman airborne missile launch officer, combat crew member, airborne missile launch training officer, and missile test director, 4th Airborne Command Control Squadron, 28th Bombardment Wing, Ellsworth Air Force Base, S.D.
4. September 1975 - December 1979, Air Staff training (ASTRA) officer, directorate of concepts, Headquarters U.S. Air Force, Washington, D.C.
5. January 1980 - October 1981, strategic force planner, the Joint Staff, Washington, D.C.
6. November 1981 - August 1985, director of defense programs and arms control, White House Security Council, Washington, D.C.
7. September 1985 - December 1985, senior director for defense programs, White House Security Council, Washington, D.C.
8. January 1986 - April 1989, special assistant to President Ronald Reagan for nuclear issues and arms control, Washington, D.C.
9. May 1989 - August 1989, deputy director for strategy and policy, the Joint Staff, J-5, Washington, D.C.
10. September 1989 - December 1990, commander, 57th Air Division, Minot Air Force Base, N.D.
11. January 1991 - December 1991, deputy chief of staff for plans and resources, Headquarters Strategic Air Command, Offutt Air Force Base, Neb.
12. January 1992 - May 1992, director, U.S. Strategic Command (Provisional) Headquarters, Offutt Air Force Base, Neb.
13. June 1992 - April 1994, director of plans and policy, U.S. Strategic Command, Offutt Air Force Base, Neb.
14. June 1994 - present, director of plans, deputy chief of staff, plans and operations, Headquarters U.S. Air Force, Washington, D.C.

MAJOR AWARDS AND DECORATIONS:

Defense Distinguished Service Medal with oak leaf cluster
Defense Superior Service Medal
Legion of Merit
Meritorious Service Medal
Air Force Commendation Medal with oak leaf cluster
Air Force Organizational Excellence Award
Combat Readiness Medal

EFFECTIVE DATES OF PROMOTION:

Second Lieutenant	Apr 23, 1969
First Lieutenant	Jun 5, 1970
Captain	Dec 5, 1971
Major	May 1, 1977
Lieutenant Colonel	Dec 1, 1979
Colonel	Oct 1, 1982
Brigadier General	Sep 1, 1989
Major General	Jul 2, 1992

(Current as of September 1994)

Testimony of Major General Robert Linhard
before the House National Security Committee
Military Research and Development and Military Procurement Subcommittees
18 June 1996

INTRODUCTION

Good afternoon, Mr. Chairmen and members of the Committee. It is a privilege to appear before the members of this committee today as a representative of the United States Air Force in order to testify about a near-term, low-risk option to use the proven capabilities of the Minuteman missile to defend the United States against ballistic missile attack, should the nation decide to deploy such a capability. My opening remarks are brief, so that we can get to the questions I know you and the other members of the committee are eager to ask. With your permission, I would like to offer my remarks and a prepared statement for the record. The prepared statement I am submitting is based on a speech the Chief of Staff of the United States Air Force, General Ronald R. Fogleman, presented at an American Defense Preparedness Association/National Defense University breakfast in Washington DC on 16 May 96.

THE NEED FOR NATIONAL MISSILE DEFENSE

In a speech at the George Washington University in April, Secretary of Defense Perry highlighted the emerging threat of missile technology in the hands of rogue states -- states that could be hostile to the United States. As he indicated, a very real danger exists that these states could secure long-range missiles and couple them with nuclear, biological, or chemical warheads. Then, that hostile regime -- one that we may be unable to deter with the threat of nuclear retaliation -- could employ intercontinental ballistic missiles against our country.

Secretary Perry stressed that we need to be ready to deploy an NMD system to defend our nation against this potential threat. While no rogue nation has ICBMs today, he indicated that it is conceivable that a country could develop its own missile delivery system or secure outside

help in fielding an intercontinental strike capability. In this manner, the leaders of a rogue nation could deploy a weapon system that could reach America's shores from their country.

U.S. STRATEGY TO DEVELOP AND DEPLOY AN NMD SYSTEM

As a result, the United States is pursuing a "hedging strategy" that entails developing an NMD system that could be deployed when this kind of ICBM threat appears on the horizon.

The initial NMD system must be capable of defending North America and Hawaii against a small and relatively unsophisticated ICBM attack that a rogue state could mount in the foreseeable future. The defensive system will also be capable of intercepting a very limited unauthorized or accidentally launched missile from more nuclear capable states. It may include sensors in space to identify and track incoming missiles, ground-based radars, and ground-based interceptor missiles.

The Department of Defense (DoD) has shifted from a technology readiness to a deployment readiness program in order to position the U.S. to respond effectively to a strategic missile threat should it emerge. This program entails developing the elements of an initial NMD system over the next three years. Then, if a rogue threat emerges, the United States will construct and deploy the defensive system within three additional years, by about the year 2003.

If such a threat does not emerge, DoD will continue to advance missile defense technologies so that we will be ready to deploy an even more capable system when the threat warrants. This approach constitutes DoD's "three plus three program."

ORIGIN OF THE MINUTEMAN OPTION

The United States Air Force has developed what we think is a viable option for fielding an NMD system prior to 2003 if it becomes necessary because of an emerging threat.

The Minuteman NMD option leverages existing components and infrastructure to provide the required defensive capability quickly, cost effectively, and with some schedule and technical risk. Fundamentally, it entails deploying 20 modified Minuteman missiles armed with defensive kinetic kill vehicles in existing silos at a single site in the central United States.

The Minuteman NMD concept originated in 1995 during deliberations of a Tiger Team which was established by BMDO to look at these issues. The Team sought to develop a national missile defense system that could be deployed at the earliest possible date to counter the developing missile threat posed by rogue nations.

One of the options the Tiger Team considered was deploying 20 Minuteman ICBMs equipped with kinetic kill vehicles in existing silos at Grand Forks AFB, North Dakota. Those interceptors would be supported by a network of Early Warning Radars enhanced by software upgrades. The BMDO Tiger Team determined that such a single-site Minuteman NMD system could provide the capability to defend North America and Hawaii.

At BMDO's request, the Air Force provided technical support in evaluating the Minuteman NMD option. In doing so, we discovered that the Minuteman missile system and infrastructure could make a major contribution to the defense of the nation against ballistic missile attack at substantial cost savings to the American taxpayer over non-leveraged systems.

Charged with defending the nation against external threats in a time of limited resources, the Air Force decided it was appropriate to further develop the Minuteman option as a candidate for the initial NMD system, and offer it for consideration.

Minuteman NMD's superior characteristics derive from the fact that it leverages three operational systems that are now in the field: the Minuteman ICBM weapon system, deployed strategic sensors, and existing battle management systems.

THE MINUTEMAN

With nearly 34 years of operation, the Minuteman weapon system is one of the most reliable and effective systems in the U.S. inventory. The Minuteman missile has maintained alert rates that routinely exceed 96%, and it has demonstrated its reliability in hundreds of operational tests from Vandenberg AFB, California. In fact, typically there are three test launches each year involving operational assets taken from the field and launched down the Western Range. The latest launch occurred on the sixth of March, and it achieved excellent results.

The Minuteman system has been modernized and upgraded over the years to extend its useful life as part of America's strategic nuclear deterrent force well into the next century. Minuteman solid booster motors are now being refurbished to extend their service life and to maintain high reliability rates. Also, Minuteman III missile guidance sets are being upgraded with state of the art electronic components.

All these improvements are part of an established and funded program to maintain Minuteman as a reliable and robust booster system. They are not part of a new program undertaken for NMD. As a result, Minuteman boosters used for missile defense could provide the same level of proven performance as our ICBM force.

The Air Force's ICBM System Program Office (SPO) assessed the engineering plans to convert the Minuteman to a defensive role. They have discovered no technical "show-stoppers." In fact, they found that converting the Minuteman to a defensive role would be a relatively straightforward endeavor. It would involve using all three stages of the missile, changing some computer software, plus integrating a kinetic kill vehicle and associated kick stage.

The Air Force ICBM SPO estimated that it would require, at most, four years to engineer, test, produce, and deploy the Minuteman interceptor. In the end, we assess that the availability of the kill vehicle will drive the program completion date.

The Minuteman booster offers the added advantage of being compatible with a variety of kinetic kill vehicles. That's because it uses its own guidance system and does not have to rely on the kill vehicle for initial guidance.

The Minuteman NMD option of deploying 20 interceptors at a single site would capitalize on the existing Minuteman infrastructure to include our trained personnel, specialized equipment, and established support network.

The ongoing deactivation of the 321st Missile Group at Grand Forks AFB will free up existing missile silos and launch control centers for possible use in an NMD launch system. And the Air Force ICBM SPO assesses that no significant changes in the ground support systems would be necessary in order to produce a defensive capability.

Additionally, we would be able to utilize fully the developed test, evaluation, and training infrastructure that currently supports Minuteman weapon system, capitalizing on the Air Force's nearly 40 years of experience in operations with long-range, guided missiles.

As envisioned, the defensive system would also capitalize on existing and planned improvements to strategic sensors and battle management systems.

SENSORS AND BATTLE MANAGEMENT SYSTEMS

The Defense Satellite Program (DSP) satellites will detect missile launches against the U.S. and cue upgraded early warning radars. These radars will generate track information for the battle management center at Cheyenne Mountain Complex in Colorado which will disseminate the track information to the interceptor site for launch and guidance. Ground-based X-band dish antenna radars will provide refined tracking data to help discriminate reentry vehicles from other objects.

After detection and warning of a missile attack, a Minuteman interceptor would be launched from its silo and it would guide itself to the vicinity of the target. Then, the kill vehicle would separate and receive guidance updates from a ground-based radar. Finally, the kill vehicle would acquire the target, guide itself into the path of the oncoming warhead, and destroy it through impact at high velocity.

The U.S. will have to deploy X-band and ground-based radars to support whatever initial NMD system that the nation decides to field. Once operational, the Minuteman system will be able to take advantage of enhanced warning and cueing provided by advanced strategic sensors -- for instance the Space and Missile Tracking System -- as they are deployed in the future.

Feasibility tests of Minuteman NMD are already underway. A major test is scheduled this month to demonstrate the concept of operations. In January of 1997, the Air Force plans to conduct a major end-to-end test.

The Air Force ICBM SPO estimates that it will take approximately 4 years to field the Minuteman NMD system at a cost of about $2.5 billion. However, this cost estimate has not yet been submitted to OSD for validation. The resulting NMD system will provide the nation a force of 20 interceptors capable of defending all 50 states. The Minuteman NMD system can accomplish this mission and be deployable in this time frame because it maximizes the use of existing infrastructure and relies upon modifications and upgrades to current systems. The Minuteman weapon system, the DSP satellites, early warning radars, battle management centers, and communications interfaces are existing, functioning systems today.

This approach to fielding an initial NMD system is directly in line with DoD directives for major defense acquisition programs. These directives require the military to first look at using or modifying existing weapon systems to provide the required capability before investing in brand new systems.

The Minuteman NMD supports DoD's current "three plus three program." Should a rogue nation threat emerge in the near future, an initial force of 20 interceptors could be deployed at a single site within the designated time frame to provide an effective defense against this limited, relatively unsophisticated threat.

In addition, Minuteman NMD would allow growth in the future. The Minuteman-based NMD system could expand to 100 interceptors at a total cost of between $3.5 to $4.5 billion. Another option would be to upgrade kill vehicles to deal with a more sophisticated threat should it develop before more advanced NMD options are available.

Finally, the Minuteman approach would not preclude any long-term option that the nation might chose to develop, nor would it drive the long-term NMD solution in any particular direction. And it would not entail building costly new infrastructures with long lead times -- an issue that cannot be ignored in building weapon systems today. Nor would the Minuteman option involve environmentally sensitive issues such as digging new missile silos. Moreover, it would not absorb enormous resources that would then be unavailable for investing in other future defensive technologies or other modernization programs.

In the end, the Minuteman option would provide a highly cost-effective, initial NMD capability to protect America against a rogue nation threat.

ARMS CONTROL

Compliance with the START and ABM Treaties is an important part of any approach to National Missile Defense. Although any Minuteman NMD system would have to undergo a thorough compliance review for both START and ABM Treaties, the Air Force believes it has developed a START and ABM Treaty compliant path for a Minuteman-based interceptor.

The Air Force realizes that if the Department of Defense selects the Minuteman option and the Congress funds it, then the U.S. will need to discuss Treaty implications of Minuteman

NMD with the Russians. However, the possibility of fielding an effective NMD system to defend the nation that would save billions of dollars in program costs makes this option well worth pursuing. And DoD has already indicated a willingness to discuss with the Russians the Treaty implications of deploying an initial NMD system.

CONCLUSION

It's appropriate for the Air Force to pursue the Minuteman NMD option and make it an achievable program for the nation. Minuteman NMD offers a viable response to the emerging danger posed by rogue states that could gain the capability to attack the U.S. with long-range ballistic missiles.

The nation must field a defensive system capable of protecting America against such a threat when it eventually arises. Minuteman NMD can provide that capability. It takes maximum advantage of established, operational capabilities to create a near-term, cost-effective, low-risk, flexible, and we believe, stability-enhancing NMD system. It capitalizes on existing technology, proven reliability, and nearly 40 years of operational experience to provide an affordable and effective national missile defense capability.

In an era of declining resources and competing social requirements, it is essential that we secure the best value for every dollar expended on America's defense. If the nation decides to field a treaty-compliant NMD system in the near future to defend against a rudimentary rogue nation threat, then the Minuteman option provides an excellent "value" for the nation.

Mr. WELDON. We appreciate the comments you made and look forward to an aggressive series of questions by members. I have a couple to start off the session today.

The first, Admiral West, would deal with the establishment of the Joint Program Office to manage NMD programs. I think it is worthwhile, and I certainly support it if indeed it is truly joint in nature, and if it in fact has the support of each of the services. So I will be asking the services to give me their candid view of the Joint Program Office, and I would like to ask you to explain how it is being structured, how the services are being allowed to nominate personnel and have a chance to play in how the JPO is set up and run. Is there a JPO charter, and have the services been given a chance to coordinate on this charter if indeed such a charter exists?

I will start with Admiral West and ask the other members to respond.

Admiral WEST. Yes, sir. It is important that it is a joint organization. It is being set up as we speak. Colonel McNierney, as I mentioned, is the current program manager.

We envision a program office detached from the Pentagon, probably in Crystal City, of approximately 40 to 60 personnel. About half of those people will be taken out of the rolls of BMDO and put into that organization. The other half of those positions will be offered up to all the services to nominate personnel to fill those billets.

There is a charter. It has been coordinated. It was signed out about a week and a half ago for service comment. It is due back to us by July 8 with their comments for coordination.

Mr. WELDON. Before I turn to the other two gentlemen for a response, does it include just the 3-plus-3, or are you leaving the services the option of pursuing other alternatives, like the variants we are going to hear about today? And I did not hear you mention—perhaps I was not paying attention—the 2-plus-2 option that was briefed to us earlier this year and last year by General O'Neill.

Admiral WEST. No, sir, I did not mention the 2-plus-2——

Mr. WELDON. And Navy upper tier as well—and the Navy option.

Admiral WEST. Yes, sir. I did not mention the 2-plus-2. The current program is the 3-plus-3. We will look at all the proposals of all the services as an option all along because there are credible parts of their programs that we have incorporated in 3-plus-3.

The Navy maritime capability for national missile defense has been looked at in the grand scheme; it has not been looked at in detail.

Mr. WELDON. Let me ask the generals to respond.

General Garner, first—your response to the JPO.

General GARNER. Before the decision was made in the Army, we proposed a JPO with a service lead—naturally, we proposed that the Army be the service lead—so we now concur on the JPO as it is right now, but when the decision was made, we signed up, we supported it, and we have offered a flag officer to run that to BMDO.

Mr. WELDON. General Linhard.

General LINHARD. Sir, the Air Force believes the JPO is the right thing to do at this time. We are working with BMDO, and obvi-

ously, we are interested in the manning and the construct, but we will work all that out within the administration, and it is going to be fine within the Department.

Mr. WELDON. Is a colonel sufficient to lead this organization?

Admiral WEST. No, sir. I think it is agreed by all three service acquisition executives and Dr. Kaminsky that it should be led by a flag officer.

Mr. WELDON. In looking at the options we have here, what really bothered me last year was this kind of simplification of our capabilities to the point of ignoring the work that I saw ongoing within the Army and the Air Force based on existing technology. That is why in my opening statement, I referred to the President's veto message on last year's bill.

So let me ask some very pointed questions of General Garner for the Army's variant and General Linhard for the Air Force's variant in response to some of those.

First of all, does either of the programs that you have available right now fall into the category of costing tens of billions of dollars to deploy?

General Garner.

General GARNER. We have one program—that is the 3-plus-3 program—and we cost that at $5.2 billion, and that gives you the construction necessary for the infrastructure on the site, the radar, the launcher, 20 interceptors, upgrades the early warning radars in addition to two more early warning radars.

Now, when we were asked to do a compressed program, we took those same end items—they are no different—but what we do is we have concurrence in the program and less testing, so we compress that to about 4½ years, and that is about a $4.8 billion program, again with 20 interceptors, the same radar, the same launchers, the same sites, the same upgrades, early warning radars, and the same additional early warning radars.

Mr. WELDON. So your dollar range is 4.8 to 5.2?

General GARNER. For 20 interceptors. I think where there may have been some confusion is that we have always talked in terms of 100 interceptors because that is what the treaty allows; so if you add the 100 interceptors, that is $3 billion more. So we are talking, for 100 interceptors, about an $8 billion program in the 3-plus-3 program.

Mr. WELDON. So going to 100 interceptors, you are still at $8 billion, but what you're saying is it is not a program that you are looking at that would cost tens and tens of billions?

General GARNER. No. I think if you look at the BMDO cost estimate, the Army cost estimate and the CBO cost estimate, for the program I just described, it falls in the range of $8 to $10 billion, according to whose cost figures you use.

Mr. WELDON. But you are saying—that is the best possible scenario in terms of capabilities—you are saying it is not tens and tens of billions.

General GARNER. For a ground-based and NMD system, yes, sir, that is right.

Mr. WELDON. General Linhard, what about the cost of the Air Force option; what range does that come in?

General LINHARD. Sir, we do not have a program. We have suggestions that we made to our BMDO colleagues. We were asked to see if we could put together, using the Minuteman as a booster, the capability that we would be able to engage a very limited threat, which we have discussed—perhaps a few RVs in the air, up to about 5—using 20 interceptors, and we ran that costing—we ran that program with the express intent to see if we could provide the performance that was requested using maximum existing infrastructure and the like, and our cost data has been reported to the Office Secretary of Defense [OSD] staff and back to the Congress, and our estimates were somewhere—our estimate is about $2.5 billion.

Mr. WELDON. Two and one-half billion?

General LINHARD. Yes, sir.

Mr. WELDON. What is the upper range?

General LINHARD. We estimate about $2.5 billion. We believe that if you look at the range of costing that has occurred between our Congressional Budget Office [CBO] point estimate, some additional costing that has been done by CBO and by BMDO, we are fairly confidence that, using infrastructure, we are probably talking in the range of $2.5 to $3.5 billion.

Mr. WELDON. What if you went up to 100 interceptors, what would the cost jump to?

General LINHARD. We have made some preliminary estimates on 100, but quite honestly, we have never really looked at that fully. Our estimates initially on 100 were that we would move from somewhere in the range of $2.5 to $3 billion to somewhere in the range of $4.5 to $5 billion. But quite honestly, we have not done a very detailed——

Mr. WELDON. So you are not talking about tens and tens of billions of dollars?

General LINHARD. No, sir, we are not, given the threat that we were asked to engage.

Mr. WELDON. The second question—General Garner, does the system that you have been working on—and there is much discussion about the ABM Treaty, and while I believe the treaty has outlived its usefulness, I understand the political implications of the ABM in Russia, and while I may disagree with some of my colleagues on both sides, I think that we have got to at least consider that—does the system that you advocate violate the ABM Treaty, General Garner?

General GARNER. We do not think that it does, sir.

Mr. WELDON. You do not think that it does.

General GARNER. No, sir.

Mr. WELDON. And that would be full deployment of that system in effect could be done without violating the ABM, in your mind; is that correct?

General GARNER. We proposed a system with 20 interceptors, options to go to 100 interceptors——

Mr. WELDON. Could you pull the microphone a little closer to you, general?

General GARNER. Yes. We have proposed a system with 20 interceptors, options to go to 100 interceptors, which cover all 50 States,

which we feel is treaty-compliant—although it has not been before the review group yet.

Mr. WELDON. General Linhard, does your system advocate breaking out of the ABM Treaty, or does your system call for the ability to provide deployment within the confines of the ABM Treaty?

General LINHARD. Sir, when we were asked to look at an option among the parameters, where we were asked if we could provide performance against that limited threat, we then—intentionally within the confines of the treaty—so our intent was to see if we could craft an option that would reasonably be treaty-compliant.

Mr. WELDON. Treaty-compliant.

General LINHARD. Again, it has not—none of our options have——

Mr. WELDON. We understand; it has got to be reviewed by the appropriate review agency.

General LINHARD. Yes, sir.

Mr. WELDON. But in your opinion as professionals, it would be treaty-compliant?

General LINHARD. Yes, sir.

Mr. WELDON. The third question deals with capability. When I spoke to General O'Neill, and he went on the record in early January this year, saying we could do a system that would provide a "thin layer of protection with a 90 percent effective rate against up to five incoming missiles," is that generally what your plans are basically considering—90 percent effective rate?

General GARNER. What we have done is designed a system whereby we think that in the 50 States, we can get off four shots against any profile. Those four shots give you .99 capability.

But now, what happens is that if you have a lot of MRVs or a lot of missiles coming in, you are dependent on the number of interceptors you have, and you can run out of interceptors.

Mr. WELDON. We understand. And you are saying also all 50 States?

General GARNER. Yes, sir.

Mr. WELDON. Even though the National Intelligence Estimates [NIE] that was referred to by my colleague only said the 48 States, you are saying all 50 States.

General GARNER. We are saying all 50; yes, sir.

Mr. WELDON. General Linhard, does your alternative provide for coverage of all 50 States?

General LINHARD. The option that we were asked to develop does exactly the same. Of course, the threat is very, very limited, very few number.

Mr. WELDON. So in other words, we have two alternatives that were based on existing technology that both of you have testified can be deployed within 4 years or 5 years; is that what you are saying?

General GARNER. [Nods.]

Mr. WELDON. Is that yes, General Garner? You need to speak it so the recorder can pick it up.

General GARNER. Yes. In a quick emergency option, we have given you two programs, one 4 years that has a very small amount of testing, which we do not recommend, and one 5 years——

Mr. SISISKY. Mr. Chairman, would you yield for just one moment? I swear I will just take a second.

Mr. WELDON. Sure.

Mr. SISISKY. Does that include submarines, too? You said you could hit which——

Mr. WELDON. Sure. We can take on the threat from a submarine, but you come down to the number or bullets, and submarines have a lot of missiles——

Mr. SISISKY. That is right.

Mr. WELDON [continuing]. So it is a function of how many interceptors you get. So there is a point at which you run out of bullets.

General LINHARD. That would be a problem for our approach.

Mr. SISISKY. Well, certainly it would; if they ever got close, you would not have enough time even to——

General LINHARD. Yes. Our only problem, again, is if you allow a rogue nation to have a submarine and allow it to drive close to the States of Alaska or Hawaii, and try to intercept it from a site in North Dakota, I cannot make up the end-game quick enough.

Mr. SISISKY. Thank you, Mr. Chairman. I just wanted to clarify that.

Mr. WELDON. General Linhard, would you also respond to the deployment dates, when you could deploy your option and in what amount of time?

General LINHARD. Sir, again, the alternative that they asked us to evaluate would fall within the 3-plus-3; it would depend upon the availability of the kill vehicle, and that could be 4 or 5 years.

Mr. WELDON. I just want to get on the record—and we have done that now—the reasons for vetoing last year's defense authorization bill—tens of billions, violate the ABM Treaty, and not able to protect all 50 States.

We have just heard two of our leading generals come before us and say we have such capabilities—we understand the limitations. No one ever discounted that, and we talked about it before when we were talking about a limitation of protecting us from up to five incoming missiles, which is what many of us think is a rogue threat, not an all-out attack by anyone.

Even the administration—Admiral West, does the administration's 3-plus-3 option protect us against an all-out attack?

Admiral WEST. No, sir, it does not.

Mr. WELDON. Thank you.

Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman.

First, I would like to go to basics so that folks who are listening to this can understand where we are coming from.

Currently, gentlemen—could each of you answer for the record—do we have the ability to stop a single incoming intercontinental ballistic missile [ICBM] nuclear-tipped missile in the continental United States? Do we have that ability?

Admiral WEST. No, sir, we do not right now.

Mr. HUNTER. OK. General, could you answer for the record?

General LINHARD. No, we do not right now.

Mr. HUNTER. OK. General Garner?

General GARNER. No, sir, we do not.

Mr. HUNTER. OK. The reason I ask that is most of the people that I have talked to—average American people—think we have that ability. And when you talk to them and say, well, what is your idea of how we would stop it, they talk about scrambling the jets, using cruise missiles, didn't Ronald Reagan take care of that for us. Most folks do not know that we are not defended.

Now, I take it you have already answered essentially my first question, which is how effective each of these proposed NMD systems would be against a single ballistic missile launched, say, from North Korea, from Russia or from China. But let us take one missile. If one ballistic missile was launched from any of those three places, what are our chances of downing it with the system that you are proposing here?

If we could start with you, General Garner.

General GARNER. Well, I will repeat what I said before——

Mr. HUNTER. Did you say "999"?

General GARNER. I said .99 given you can get off four shots.

Mr. HUNTER. OK. Is it .99 or .999?

General GARNER. It is .99.

Mr. HUNTER. OK. Admiral West.

Admiral WEST. Yes, sir, I concur with that. If you can get your four interceptors off, it is .99.

Mr. HUNTER. OK. Any disagreement with that, General Linhard?

General LINHARD. No, sir; just one point of clarification. We are obviously talking about a missile——

Mr. HUNTER. I understand. We are going to take that up now. Let us say 2 to 10 ballistic missiles were launched from North Korea or from China or from Russia—2 to 10. What would we expect in terms of defensive success?

General Garner.

General GARNER. Two to ten missiles?

Mr. HUNTER. Yes.

General GARNER. Again, if you could then get off between 8 and 40 missiles—4 missiles per launch—you again can get .99. Now, if those missiles are all major regional contingency [MRC], that is another scenario.

Mr. HUNTER. OK. We are talking about incoming vehicles, basically. So if you assume you had 2 to 10 that were not MRC, what is your answer, again?

General GARNER. Again, it is really a function of the attack profiles. If somehow, many of them were launched together, that really compresses your time line, so you may not get .99; but given you have them sequentially launched, or not all of them are launched together, then you can get .99.

Mr. HUNTER. OK, so even 2 to 10, you think we could keep that same high batting average.

General GARNER. Yes, sir.

Mr. HUNTER. OK. Admiral West, General Linhard, any difference there?

Admiral WEST. I agree with General Garner. I think the threat does drive—on the fringes, as you approach five or more, let us say, you space them, and you make some assumptions about the threat—one assumption may be that it is salvaged fuse nuclear weapon or some other assumptions like that—you start to fall off

rapidly after about four or five incoming on the fringes of our battle space.

Mr. HUNTER. OK. Let me ask you a question with respect to the slower ballistic missiles, the surface-to-surface missile system, Scud-type missiles. General O'Neill testified at one point that the new missile that the North Koreans are building, which initially was classified as a theater-type or a slower-type missile, may have been reclassified now to the strategic category, meaning it is a little faster. But he said that none of the theater systems we were building could stop it.

Do you have any new information? I am talking about the Taipadong II missile that the North Koreans are building; can any of the theater missile systems that we are building now stop that missile?

Admiral WEST. No, sir.

Mr. HUNTER. Any disagreement, General Linhard or General Garner?

General LINHARD. We do not have a program in that range right now.

General GARNER. If you are talking about the Taipadong missile, which has a range less than 3,000 kilometers——

Mr. HUNTER. Well, they have now classified it from four to six.

General GARNER [continuing]. No, we cannot take on that. But the current Taipadong that we are looking at, with a range of less than 3,000, both the Army and the Navy have systems that can take that on. When you breach 3,000 kilometers, we are in trouble.

Mr. HUNTER. OK. For your information, General Garner, the last panel that testified on Taipadong, they have no upgraded that to four to six, and at least one of the panelists said it has now either been classified strategic or was on the verge of being classified strategic. But basically, we cannot stop that, according to Admiral West. That is your latest information, anyway.

Admiral WEST. Yes, sir.

Mr. HUNTER. Now, the Koreans have a history of selling every type Scud—every type of ballistic missile they have manufactured so far has been put on the market, has it not? Do you have any information on that?

Admiral WEST. No, sir, I really cannot speak to that.

Mr. HUNTER. OK. Well, my information is that they basically sell everything they make. They like the hard dollars, and there is nothing at this point that should convince us that they will not be selling the Taipadong II when it reaches production.

Do you have a production date, or window, in which you think that will be coming on line for the North Koreans?

Admiral WEST. I think you can plan on as early as between 2000 and 2005, sir.

Mr. HUNTER. OK.

The second level of question—this national missile defense technology that we are moving into with an NMD program—I guess the point I am getting at is this—our theater missile defense systems, the TMD systems, the Theater High Altitude Area Defense system [THAAD], Navy upper tier, and so on, were designed with the idea of protecting our troops in theater, foreclosing the occurrence that we saw in Desert Storm, where we had ballistic missiles launched

at American troop, and not a lot we could do about them—some capability with Patriot—but we designed it for that purpose. We are now seeing the North Koreans building a missile that is going to exceed the capability of the Defenders that we are designing that are not even IOC'd yet.

So my question is this. Is there a value from the NMD program, which is designed to intercept fast stuff—is there a value that we can use to our benefit if we should see some of the bad guys try to shoot our troops in theater with fast missiles. Remember, there is no world statute that says that a bad country has to shoot a slow missile at troops in theater. And if you presume that the North Koreans are going to have Taipadong II that we cannot stop, and they are going to sell Taipadong II—in fact, I would presume they will probably get a premium price on it because that is a missile that the Americans cannot stop with theater systems—is there a value in moving forward with national missile defense if, basically, it is our program to shoot down fast missiles? Do you see some value accruing to your office as a result of that?

Admiral West.

Admiral WEST. Yes, sir, I think the technology is an advantage. I agree with General Garner that our theater missile defense systems are being designed against 3,000- and 3,500-kilometer-range missiles and below, which equates to a certain speed, where Taipadong is significantly higher than that.

Mr. HUNTER. Yes. But at some point, you may be called upon to protect troops in theater or come up with a system that will protect our troops in theater if we see the North Koreans proliferating their fast missile designs. Is that accurate?

Admiral WEST. Yes, sir. That is a threat to theater; that is correct.

Mr. HUNTER. Do you have any other ideas on how we could stop them?

Admiral WEST. No, sir, I do not.

Mr. HUNTER. OK.

One more question, Admiral West, that I think is relevant to this hearing today. The Aegis Navy upper tier has obviously some potential with respect to national missile defense—the idea that you could configure ships in such a way where you do not have all the land acquisition, environmental problems and other problems that are going to accompany any program to land site defensive systems in the United States.

Are you folks exploring ship-borne NMD at all? Is there any inquiry or any study there?

Admiral WEST. Yes, sir. We have reviewed maritime-based national missile defense program; we have not done it in great detail, though.

Mr. HUNTER. OK, thank you.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Chairman.

Mr. Sisisky.

Mr. SISISKY. Thank you, Mr. Chairman.

I appreciate you gentlemen being here today. I had a whole bunch of technical questions, but let us get down to common sense. My argument is probably with the other side there, and you have

already agreed that 3-plus-3 is the right way to go. Explain 3-plus-3 just for a moment. As I understand it, you do all the research, and if the intelligence community tells us we have a problem, then you can deploy at that time. Is that correct?

Admiral WEST. That is correct, sir. We use the first 3 years to develop the program, culminating with a systems test in the third year, at which time you can evaluate the threat and make a decision to deploy that system within the next 3 years.

Mr. SISISKY. Well, if the intelligence community says it is 2005, then we have more time to do the research and develop space-based or anything that we want to develop at that time.

Admiral WEST. You can do anything you want to, sir.

Mr. SISISKY. Am I correct in that?

Admiral WEST. Yes, sir.

Mr. SISISKY. OK. You know, you can talk about shooting 10 missiles, 99 percent, things like that, but you know, we were never able to stop the Soviet Union from shooting 200 missiles that we can never do anything to. The only thing that has protected us is the same thing that protects us today, and I do not know how, all of a sudden, we forgot in the sixties and the seventies and the eighties something called mutual assured destruction.

Now, I made a statement—we had some people in here who were China experts—I said is the psyche any different between the Chinese and the Russians, because they have to know that if they shoot a missile, whether it is to Los Angeles or whatever, that there would not be any China left. Mutual assured destruction.

In your mind, is there any difference in that now? I will accept rogue nations, and I understand that, and I will come back to that in a minute.

Admiral WEST. I am not sure I am an expert in that area, sir.

Mr. SISISKY. That is a good answer. You are right—because I do not think anybody is. But the honesty of the question, really, is that I do not think it has changed because everybody knows—we do not have to shoot missiles from the United States; just our Trident submarine can destroy probably any nation—which reminds me, we have MRV—you said you could not protect in 3 years against MRV missiles—did I hear you correctly? Somebody said something about MRV, and you said——

General GARNER. No—the question was could you handle 10 to 20 ballistic missiles, and the answer was yes, we could, but if they are MRV missiles, then you have a problem. Then you get into the end-game problem.

Mr. SISISKY. You are right. Well, it seems to me that if somebody is going to make an attack, they are going to attack our vulnerabilities rather than our strengths. That is the only reason why I mention that.

I cannot understand, really, what we are getting into. It just seems to me that if we can rely—and nothing is 100 percent—we cannot stop people from making bombs in this country, and strong bombs. Sooner or later—you cannot defend against somebody who builds a nuclear weapon in this country, and I am sure——

Mr. WELDON. Would the gentleman yield?

Mr. SISISKY. Yes.

Mr. WELDON. Should we not, then, support a national missile defense for Israel in the form of the Arab program and rely on deterrence?

Mr. SISISKY. I do not understand what you mean. Say it again.

Mr. WELDON. Well, if the feeling is that China is not going to attack Israel or any other rogue nation, then should we not worry about Israel having its own national missile defense system in the form of—or Nautilus—and rely instead on the theory that if someone attacks them with a nuclear weapon, they would be annihilated from the response.

Mr. SISISKY. They have got to find that first. Let us be very honest. Is somebody is going to put a nuclear bomb into Jerusalem? No, they are not going to do it in Jerusalem because they will blow up their own people. That is a little different story over there. They are surrounded.

Believe me, I want to protect the American public; I think everybody here does. It is just a matter of how we do it. I would rather that our intelligence community says we have 3 more years to do the research before somebody does it, and a rogue nation—we would know where it comes from, and I cannot believe they are going to do it unless they build something in this country, and there is no protection against that that I can see.

With that, Mr. Chairman, I yield back the balance of my time, saying my argument is really with you, not with these gentlemen.

Mr. WELDON. It is a pleasure to argue with you, Mr. Sisisky.

Mr. SISISKY. Thank you.

Mr. WELDON. The chairman of our full committee, Mr. Spence.

The CHAIRMAN. Thank you.

I did not have as much a question as I did an observation to make on the reason for all these hearings and everything else. If we are trying to defend this country—and it is difficult—it used to be that you had to fight battles in other places, with different kinds of enemies and all the rest—I observed not long ago that in the country this time, the tactics are different, and the enemy is different. The enemy is sometimes ourselves. And we argue about things just because we do not want to do it. This is the best example I can think of—3-by-3. I laugh every time I hear that. I do not know what means—3-plus-infinity, I guess is a better way of putting it.

It is kind of like, the other night on the floor, I asked this fellow who always voted against our defense authorization bill—I was curious—I noticed that he always did, and I asked him if it is the water he drinks or what that caused him to react that way. And he said, "Well, I do not have a Naval base in my district or any defense plants."

And I said, "Great—you have people, though, don't you, that we are trying to defend." That was a 3-by-3 kind of answer he gave—it is not a threat to me because I do not have a base or a plant in my district. He forgets the fact that we are trying to defend this country, and we need all these things to do it.

I could spend half an hour and run down all the excuses that people are giving on this question of why they do not want to defend this country. Limited attack—well, you know, that will not happen; it is kind of like what they say about insurance—as long

as the possibility of fire exists, you are going to have the insurance policy. You are not going to wait for it to develop later on, 3 years down the road somewhere.

The same thing is true of all of our military and what we are trying to do for them, to help protect this country. We are training, we are spending money, and we are doing all kinds of things. Maybe the threat is not imminent right now. A lot of people think we are out of the woods, no more threats, but it is coming, and everybody knows it. We are not putting off these other things; we are doing it.

Three-plus-three, or whatever you want to call it, does not make the commitment. The commitment to defend this country is what we ar all about—not talking it to death.

Well, it is priority. That is another good reason. We need to put more into theater missile defense. That is high priority. We are doing more in theater missile defense. All of you know that.

And then, what do those people do who counter us on that? They scattered it all out and break the programs down and put it over 2 years. Even there, we are trying to improve our theater missile defense.

It costs too much. We are "cooking the books"—all kinds of ways to show that we cannot do it, that we do not want to defend this country because it costs too much.

We are trying to point out here today that it can be done without costing that much. But if it comes down to defending our people, it cannot cost too much if we value our people and our country and our freedom.

I cannot understand this thing. We are trying to get our own military people to help us defend our country. And we are all grown-up people, and we know how the system works.

Now is the favorite time of mine to give the example that I used before. Back when Jimmy Carter was President, if you remember, I used the Air Force—and I can use the Navy as an example, too—the top priority of the Air Force was the B1 bomber, general, if you remember. It was the top priority of the Air Force. But President Jimmy Carter was against the B1 bomber, so that meant the Secretary of Defense was against it, the Chief of Staff of the Air Force was against it, the Secretary of the Air Force was against it, the Chairman of the Joint Chiefs, Air Force Gen. David Jones, was also against the B1 bomber.

Why? Because the President was against it. And we did not get even though Congress approved it. He vetoed it, if you remember.

Then, we had a change in the White House, and if you remember, President Reagan kept General Jones over as chairman for one more term. And it just so happened that Reagan was in favor of the B1 bomber. So that meant the Secretary of Defense was in favor of it, the Secretary of the Air Force was in favor of it, the Chief of Staff of the Air Force was in favor of it, and guess what? The Chairman of the Joint Chiefs, who sat in that same chair and said, "We do not want this thing" now says we want it.

Mr. HUNTER. I am shocked.

The CHAIRMAN. Well, they did change the name; they called it B1B, son of B1.

So gentlemen, that is the whole story, and we all understand what the ball game is all about in this town, but we are just trying to defend our country, and we need your help to do it.

That is all.

Mr. WELDON. Thank you, Mr. Chairman.

Mr. Edwards.

Mr. EDWARDS. Mr. Chairman, thank you.

I thought the wrong approach toward national missile defense was pushing it as part of a political document, H.R. 7, part of the Contract With America, and I objected to that approach.

Mr. Chairman, I think this approach is a rational, positive and constructive approach to looking at serious questions to a very serious issue.

Let me begin by saying that I think we all agree that everyone on this committee and everyone in Congress wants to defend American civilians against a massive attack by some enemy force. I have a 6-month-old son, and I will not take a back seat to anyone in this Congress in terms of my interest in seeing that, as a civilian in the years ahead, he can grow up in an environment where he is not subject to threat by some foreign enemy.

I think the question is what is the threat assessment. We have had hearings on that, and we probably need to continue more hearings on that. And the question is if most of us do want to probably build a national defense system, how quickly do we do it, and what system do we use?

My question to each of you gentlemen would be: If this were 6 years from now, and we put in place the system that you suggested a few minutes ago that would be 99.9 percent effective against one or two missiles sent in from a foreign country, for a moment, play devil's advocate. If you were one of those foreign adversaries, and this were 6 years from now, and you knew that the United States of America had a 99.9 percent effective national missile defense system against an ICBM launched from foreign territory, what other vulnerabilities do we have to massive killings of our American civilians by those nations? Could that include cruise missiles, nuclear-tipped? Could it include submarines? Explain that threat. Could it include delivering a nuclear bomb in a U-haul truck? Could it include chemical weapons? Could it include biological weapons?

If you were for a moment actually playing devil's advocate in the shoes of those military leaders in that foreign country, knowing your ICBM was not going to be effective in killing American civilians, what other threats would you still have at your disposal? Could each of you please answer that?

General GARNER. Oh, I think you named most of them, sir—cruise missiles, certainly. But in the game of war, you give your opponent multiple ways to die. So what you do is you begin to take away his options. So what the national missile defense system does is take away one of his options, which I would contend is a very significant option.

You still have not covered cruise missiles, you still have not covered the tactical intelligence and related activities [TIARA] threat, but those are other options we ought to work on.

Mr. EDWARDS. Right. So cruise missiles would be—the countries that we are talking about—China and Russia—until we get into the threat of rogue nations, which is a different and a very significant and real threat that we ought to be concerned with—if we look at China and Russia, they would have access to cruise missiles; is that correct?

General GARNER. I think a lot of countries have access.

Mr. EDWARDS. They would have access to submarines?

General GARNER. Sure.

Mr. EDWARDS. Why would they not, 6 years from now—again, we have spent $5 billion, and if that is all it will cost, I may be a strong supporter of it—but assuming we have already built it 6 years from now, if they know we are effective on an ICBM, why would they not take one of their submarines and bring it within a few miles of our coast and launch from the submarine?

General GARNER. I think that if you have a submarine with that capability, that is certainly an option.

Mr. EDWARDS. OK.

Admiral West, General Linhard? And I am not trying to downgrade—I am not even trying to argue against the national missile defense system. I just do not want us to think that because we have built this huge wall in front of us, there is not a Trojan horse that might find another way to defeat us other than going over the wall.

Admiral West.

Admiral WEST. I agree with General Garner. I am sure there are lots of ways. I am not an expert in that area, but I think that until you deal with the threat that is there and we know is growing and could happen at any time, you do not eliminate that option from this quiver.

Mr. EDWARDS. But you still agree that even if we built—if we built this system, and this were 6 years from today, there would still be other ways, readily available to these kinds of nations—Russia and China and North Korea—to kill massive numbers of American civilians; is that correct?

Admiral WEST. Yes, sir. But I think if you do not do anything about missile defense, that adds another way of them doing it.

Mr. EDWARDS. Although if I were one of their leaders, admiral, and I knew that if I launched an ICBM, the United States would know exactly where it came from, and as Mr. Sisisky said, I would then be subject to mutually assured destruction, it would seem to me that I would, thinking rationally, try to find a different way to deliver a nuclear warhead, perhaps in a truck, a barge, a boat, or some other vehicle. Wouldn't that seem to make sense?

Admiral WEST. That is a possibility to a rational person, yes, sir.

Mr. EDWARDS. OK.

General Linhard, can you tell me, 6 years from now, would we still be exposed to potential threat from our adversaries?

General LINHARD. Yes, sir, we would. On the other hand, I agree with my colleagues that you need to put that in the right context.

For example, if you are talking about a rogue nation—and by definition, a rogue nation—for example, let us pick an action by perhaps North Korea—not a Russia, which is a legitimate nuclear-armed power with which we have negotiated agreements and

which, as part of that agreement, we under the ABM Treaty guarantee to them and to ourselves the right to basically hold vulnerable value structures involved to allow a deterrence relationship to exist. Obviously, that is going to exist whether or not, based on what you have asked, we provide a legitimate like defense against some other threat.

With respect to China, obviously, again, China has a large technological capability, and perhaps Chinese could in fact offer us a distinct challenge from the homeland by a variety of means. But when you move down a step, although cruise missiles and the like exist, what we are talking about is our homeland, and we do have the advantage of range. And quite honestly, I cannot guarantee you at all that we could protect you, or that we could protect each other, from a third nation airliner that has put some horrendous weapon in its baggage; but at the same time, we see as we move further the fact that ballistic systems are or have become an interesting weapon of choice around the world and that it will be very, very difficult for us in the future—although we make every effort—to control that threat. Therefore, I would agree with my colleagues that if the balance is correct, there is some rationale for providing the American public some level of defense.

Mr. EDWARDS. I appreciate your answers, and I will conclude by saying this. The purpose of my question is not to argue against any national missile defense system—and I am thrilled to hear today that for $5.2 billion, we could build a system that would be 99.9 percent effective against one or two missiles.

I just want to be sure that in this national debate, both here in the committee and politically, out in the rest of our country, we do not build a false sense of security among Americans; that if we build this $5.2 billion system your children are safe against any attack from terrorists. I think that that false sense of security could actually increase our threat from cruise missiles, submarines, chemical weapons, biological weapons, and others.

Thank you for your answers. Mr. Chairman, thank you for your time and the hearing.

Mr. WELDON. Thank you, Mr. Edwards.

Mr. Bateman.

Mr. BATEMAN. Thank you, Mr. Chairman.

Mr. WELDON. Would the gentleman yield?

Mr. BATEMAN. I would be happy to yield.

Mr. WELDON. I thank the gentleman for yielding for one quick follow-up.

Isn't it true that what we are talking about here are not an end-all in themselves, but rather are meant to fill a short-term void against a threat that we have nothing right now to defend ourselves with? I would think—and correct me if I am wrong—that what we are talking about would also be done while continued research is looking at what is a more robust capability, while we are negotiating, perhaps, new agreements with the Russians and other countries, while we are looking to change the mentality from one of offensive threat to defensive, and while we are looking at new capabilities to give us a more robust defense down the road. Isn't that what both of your options are meant to do—give us a short-term capability?

Is that true, General Linhard?

General LINHARD. Yes.

Mr. WELDON. General Garner?

General GARNER. Yes, sir.

Mr. WELDON. And Admiral West, isn't that what you are after as well?

Admiral WEST. Yes, sir.

Mr. WELDON. Thank you.

I yield back to the gentleman.

Mr. BATEMAN. I take it from what I have heard this afternoon that each of you believes that the country would be well-served and should go forward with the deployment of a national missile defense system. The question is as to the time element and the level of confidence in technology and the degree of testing; does that accurately reflect your baseline point of view?

Admiral WEST. Yes, sir.

Mr. BATEMAN. How much of the technology that is being thought of in the context of national ballistic missile defense is an outgrowth of what you are doing or what others may be doing in theater missile defense, and what synergism is there between the progress and confidence in the one system based upon what people are doing in the other system?

I mean, are you learning things from the people who were charged with a theater missile defense, or are they learning things from you, or just what is the transfer of technology that is taking place between the two systems?

Admiral WEST. I think there is a lot of transfer, sir. As you know, BMDO does both joint theater missile defense and national missile defense, plus maintains the technology base to support both theater and national missile defense, and I think there is a lot of synergy and leverage there.

One good example is the ground-based radar [GBR] that is associated with our TMD THAAD program and how it goes into supporting the national missile defense program.

Mr. BATEMAN. Well, we have had this discussion about 3-plus-3 as it relates to a national ballistic missile defense, but do you feel we are nearer to being able to deploy an effective theater missile defense system than we are a national ballistic missile defense system?

Admiral WEST. The answer to that is yes, sir, because we have an acquisition program in theater missile defense with milestone and IOC dates set right now. We do not have that, of course, for national missile defense.

Mr. BATEMAN. OK. That is all I have, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Bateman.

Mr. Spratt—are you ready now, Mr. Vice Chairman?

Mr. SPRATT. Yes, Mr. Chairman.

The bill that is before us, or will come before us shortly, H.R. 3144, the Defend America Act, calls explicitly for a missile defense system to defend this country which is highly effective. Now, as I have understood the testimony of each of you, none of the options that you have laid out today, these contingency options, would meet that criterion; is that correct—a highly effective defense of the United States?

General GARNER. Define highly effective, sir.

Mr. SPRATT. Well, that is the question. It also goes on to say that "This system would have to defend us against an accidental rogue or unauthorized attack."

Now, I would define unauthorized to include at least one loose submarine boat commander who would have the capacity through some means of unleashing his whole missile load on this country, which could involve quite a few SLBMs if the entire boat were dumped on the United States.

What is your definition of unauthorized? Is there some sort of standing definition of what unauthorized means or what it equals in the way of incoming warheads as opposed to accidental?

Admiral WEST. Sir, I think we are on record as saying the Department's 3-plus-3 cannot defend against a boatload of submarine-launched ballistic missiles. It is a limited attack, and I think we talked within five or fewer incoming warheads that we could be effective.

Mr. SPRATT. So your contingency options being less than the 3-plus-3 option would not be capable of handling an unauthorized attack by that definition, then?

Admiral WEST. That is correct.

Mr. SPRATT. Now, is that an acceptable or a conventional definition of unauthorized, or is there some other definition that is less than a full submarine load? Do we know what unauthorized means? Is there some kind of settled convention?

General GARNER. I do not know what unauthorized means. I agree with Admiral West. If you have a rogue captain, and he unloads a boatload, we have got a bit problem.

Mr. SPRATT. Under this system, 3-plus-3, or——

General GARNER. Yes, sir. Under, I think, any of the ground-based systems that you would propose, especially if he is close-in.

Mr. SPRATT. In March 1995, Ballistic Missile Defense Organization put out a study of the various options—not your contingency options so much, but space-based options as well as the traditional ground-based options, and a mix of the two, plus kinetic space-based interceptors and directed energy interceptors. And in all of the cases where they presented a chart and showed how many of reentry vehicles [RV]'s these systems would effectively protect against, the max that is ever represented for any of the systems, even a combination with multiple sites and layered space-based defenses, is 200 plus or minus reentry vehicles.

There is a paragraph in that report which says if the incoming RV's are salvage fused, then somewhere in the range of 200 RV's at the same time begin to present a problem for further efficacy of any sort of mid-course defense system because of, I suppose, the problems generated by the detonation of these RV's with respect to the electromagnetic and radiation atmosphere in which the infrared [IR] sensors and the radar have to work.

Is this the basic position of BMDO and of yourselves at this time, that there are limits of how many RV's can be taken out simultaneously if they are salvage fused?

Admiral WEST. Yes, sir, that is true, because you have to space your interceptors if you assume there is salvage fusing; yes, sir.

Mr. SPRATT. So that even if we went with multiple sites, and even if we had space-based interceptors in the mid-course, maybe not in the boost phase, which would obviate some of this problem, and if you had up to 200 RV's, we have got a problem; we are approaching one of the limits of any system if the incoming RV's are salvage fused.

Admiral WEST. Sir, I am not familiar with the report you are referring to, but you do have a problem if you assume salvage fuse and because you have a time separation requirement for your interceptors. I am not sure what that number is.

Mr. SPRATT. Therefore, any country that is capable of launching an attack against us that has more than 200 RV's simultaneously and one the first wave would be capable of overwhelming just about any system we could deploy for defense purposes, unless it were a boost-phased intercept system, which obviated the mid-course intercept problem. Is that correct?

Admiral WEST. I do not know, sir.

Mr. SPRATT. Well, isn't it consistent with what we just laid down?

Admiral WEST. Yes, sir, it is.

Mr. WELDON. Would the gentleman yield?

Mr. SPRATT. Certainly.

Mr. WELDON. Isn't it true that the only country that has that capability in fact is Russia, which is the very reason and logic behind having mutually-assured destruction in place and the very reason why we need to modify the ABM Treaty?

Mr. SPRATT. Well, let us ask General Linhard, who is an old missileer. Is it hard to salvage-fuse a warhead?

General LINHARD. Sir, I think the right answer I should give you is that I should refer you to the BMDO office, but I am going to do the wrong thing and make a comment. The comment is that, quite honestly, I think it is not the issue of how you handle a structured attack and what you can do in a structured attack to defend. It is not a trivial issue. And sir, I believe that we can provide a decent structured answer to that, but there are options like if it is available in that context, it would be a different world than we are in today. Right now, as the chairman mentions, I would argue that we depend upon our nuclear retaliatory capability to restrain the actions of our Russian friends who are in a different relationship right now. And in that world, you perhaps could engage the problem either by looking at some front-end loading by boost phase; there may be ways to increase the velocity of intercept that might challenge the technical ability of a salvage fuse as we currently understand it. But that is a technical issue that the intelligence community and my technical brethren can help. If you are interested in that, I am sure——

Mr. SPRATT. I am interested. I would like written response, and we can talk about it further. But what I am suggesting is that even a robust full-up system, even a system with a couple of layers, might reach limits of effectiveness at a fairly early stage from a determined adversary—not from North Korea, but from a determined adversary—if things were to turn the other direction in Russia, God forbid, and a country with an arsenal that side would still be

able to penetrate anything we could deploy in the foreseeable future. That is the question before us.

Let me ask some questions about the Minuteman. You speak of its leveraged capabilities. By that, do you mean that it can lift more than one electromagnetic kill vehicle [EKV]?

General LINHARD. No, sir. It could, but that is not our point. Our point would be, very simply, that we have suggested that you can leverage the use of existing facilities. That is what we are about—that you have already paid for. Basically, you have a structure, launchers, cruise, trained command-control relationship that you can leverage to provide a capability just as much as you leverage the existence of an *Aegis* cruiser to allow us to make the best benefit of that.

Mr. SPRATT. Given the enormous thrust of a Minuteman, would it be capable of taking to the point of launching several EKVs, three or four EKVs?

General LINHARD. Yes, sir, it could.

Mr. SPRATT. How about physical space limitations—would you be able to fit the EKVs on the upper stage?

General LINHARD. I am certain that—let me drop back for a minute. The dimensions, the size of the EKV that we select—that we, together, select; that we select as a government—of course, depend upon the design that will be done by my friends in BMDO. Given designs and given the fact that I have got a missile that has the ability of significant throw-weight, I have no doubt that technically, you could launch more than one EKV along the lines that I think my colleagues are envisioning as the appropriate EKV to use in the system.

The actual number and the dimensions, once we have that, we could give you a feel for. By the way, I would note that doing so would cause us a bit of a problem because we would want to have only one kill vehicle. We would suggest that the right way to think about it is probably one-per given the limitations that are obviously in the ABM Treaty.

Mr. SPRATT. Let us come back to that, but isn't there another problem? You have been in strategic missiles virtually all of your career. If the launch coming out of Russia against us were an unauthorized launch—or, rather, an accidental launch—which, by definition, I suppose nobody would know about for at least several minutes in the country from which it was launched, and if what we used to respond to it would be a launch of several Minuteman missiles, wouldn't that run the risk of making the Russians think that we had launched our offensive missiles against them before confirming the attack, that we had launched on notice that we were potentially under attack and that they were about to be counterattacked themselves?

General LINHARD. I believe that that is a matter of judgment. I mean, obviously, there is a situation that needs to be addressed. It is a matter of judgment that I am sure the JPO will take into account as it works through and as our Department continues to develop our one Departmental program.

I would simply make a few observations. No. 1, if we are trying to find a solution that allows us to minimize the amount of perturbation that might occur with the ABM Treaty, obviously, the

launch locations that we are dealing with are going to be somewhere within that part of North Dakota, number one.

No. 2, if we are going to have a system that has the reach to provide that kind of capability to Alaska and Hawaii appropriately, then the type of system that is used, the missile that is used, whether it is a Minuteman or some other missile as appropriate—and our department will come back with a very good recommendation on that over time—clearly, it is going to require—and General, correct me if I am wrong—I believe we are going to require about 7.2 kilometers per second available thrust as a minimum——

General GARNER. [Nods.]

General LINHARD [continuing]. Which is a fairly sizeable amount of thrust, so we are going to see some launches coming out of the State of North Dakota—God forbid—of a missile that is perhaps a fairly sizeable missile.

We would argue, or at least, we had observed—and of course, it will be the department that will make a final judgment on the overall risk—that by a combination of the fact that we will have no offensive Minuteman missiles in the Grand Forks area by that time—we are taking those missiles out—number two, the fact that we would suggest that perhaps we could handle the ABM and Strategic Arms Reduction Treaty [START] related issues by doing some creative reactions with our Russian colleagues on those sites, so that the Russians, if they were still included under the START agreement, could in fact come and see them, see that they are defensive sets, and there is one interceptor per, and given what we would project to be reasonable command-control capability on the Russians, we think it is certainly a matter that our department—that it is sufficient that we could suggest to the department that it ought to consider it.

Is there a risk? Yes, sir, of course, and you need to look at it in full context.

Mr. SPRATT. Well, let me ask you this. We are talking about contingency options. Is the Air Force also pushing this as a regular option, as the way to go for ground-based interceptors using the available boosters?

General LINHARD. Sir, the Air Force position is that we support the work of the department. We were asked to evaluate a threat to see if we could provide a contribution that was available in the relatively near term that had limited capability, but it was equally limited cost-effectiveness and intended to be ABM-compliant.

When we looked at that, the only thing that we have added to the department is to suggest that it may be useful for us to make maximum use of our existing facilities because you actually do have launchers and missiles and cruise and the like.

Now, the department I am sure will look at that, and it has the ability to contribute in anyway the department sees fit.

Mr. SPRATT. Let me now ask General Garner, what downside or disadvantage is there to going with the Air Force's booster as opposed to developing a booster optimized for the mission of ground-based intercept?

General GARNER. I will not comment on General Linhard's program. I will say that in our program, we had available to us any booster we wanted, and we did not select that as a booster. What

we proposed in the near-term option was a commercial stack of currently off-the-shelf boosters.

Mr. SPRATT. But unpack what you just said; why did you do that? No. 1, why would you go with a commercial booster, which we would have to buy if it were not specifically designed for the ground-based interceptor, and why would a specifically designed booster optimized for your particular EKV be better than a hand-me-down Minuteman?

General GARNER. We felt that the interceptors that we proposed had more capability—a little faster—and we also felt that the Minuteman had Treaty compliance problems. That was our thought. The review group had looked at that. And in the fielding of an NMD system, we did not think it was prudent to get wrapped up in a Treaty argument.

Mr. SPRATT. Would the booster that you are designing be easier to deploy in the sense that it weighs less, is more mobile, requires a different kind of silo? Are there any advantages like that? Does it give it any more kick than the Minuteman would give it at 7.2 kilometers?

General GARNER. Right now, the booster that we have proposed, we are looking at a velocity of a little bit better than 8 seconds.

Mr. SPRATT. Eight seconds.

General GARNER. Eight seconds. That is what we said. And I am not sure that BMDO agrees with that, and others. But in our preliminary look, we have looked at somewhere between 8 and 8.2 seconds.

Mr. SPRATT. That is one advantage. Are there other advantages—mobility, size, weight, maintainability?

General GARNER. We have not looked at mobility because the Treaty does not allow mobile launchers.

Mr. SPRATT. Well, if you do Minuteman, we are sort of wedded to where the Minuteman is, are we not? For example, if you wanted to go to multiple sites and get coastal coverage, there would not be Minuteman silos available in the coastal Pacific Northwest or the coastal Eastern seaboard.

General LINHARD. Without a doubt, sir—just one minor correction. The size of a missile to provide that coverage—I believe our technical folks say that you need about 7.2. The Minuteman we believe, with kick stage, is about 8.5. But I have no doubt that between the missiles involved, all of them will provide sufficient capability to allow you to use the kinetics.

On basing, one of the advantages that—the simple observation, sir—we have made the point to our colleagues that clearly, we do not propose digging additional silos. One of the benefits is that you have things that you have already bought. There are currently sufficient silos in the North Dakota area for you to use if you wish. There are some creative areas, but we do not see the point. Quite honestly, we were asked could you provide the capability for about 20. We can, and we see a very good reason why you could have a potential saving.

Mr. HUNTER. Would the gentleman yield?

General LINHARD. Having said that, obviously, it needs to be considered within the department.

Mr. SPRATT. Certainly.

Mr. HUNTER. Would the gentleman yield on that question?

Mr. SPRATT. I would be glad to yield.

Mr. HUNTER. There are test Minutemen sites in California.

General LINHARD. Yes, sir, there are.

Mr. HUNTER. How many are there? I think there are a bunch of them up at Vandenberg, aren't there, or a couple of them?

General LINHARD. Sir, we have probably available—and I would have to return that for the record—but you have, I believe, at least four—two that I know of, and perhaps four—sites.

Mr. HUNTER. Aren't there a couple at Vandenberg?

General LINHARD. Yes, sir, at Vandenberg because we have done multiple Minuteman launches from Vandenberg for test purposes, in other words, where we shot two at once from two silos.

Mr. HUNTER. OK.

General LINHARD. But the silos change, and their availability, I am not current with.

Mr. HUNTER. I thank the gentleman.

Mr. SPRATT. Mr. Chairman, I yield the rest of my time which is already exhausted, and I have more questions, but I think others do, too.

Mr. WELDON. I thank the gentleman. We are going to come back for a second round because there are a number of questions that we all have, so if you do not mind staying, we have a lot more area to cover.

Mr. Thornberry.

Mr. THORNBERRY. Thank you, Mr. Chairman.

While I recognize that there are no perfect historical analogies, I have tried to listen to the debate and questions on this subject very carefully as long as I have been in Congress. I keep thinking back to all the arguments that were used in Britain in the twenties and thirties against developing an air defense system, and all the reasons that it could be defeated, all the ways you could get around it, why airplanes were invincible, and there was no way you would stop it, there would always be a way to overcome it in some manner. And yet, they decided to go ahead and do what they could, which happened to be good enough to win the battle, not to say that that is the state of the art today. We continue to work on air defenses because you can always improve in some way, and I am certainly not as much of a military historian as our friend from Missouri, Mr. Skelton, but I do not yet know of a military weapon or weapon system that is invincible and cannot be overcome or could not be improved in some way.

It just seems to me when I get to the bottom line on this issue, it is that we ought to do what we can, and then work to improve it, to fill in the holes. I guess that is where I want to start, on what we can do today, and I need to go back to basics a little bit.

On your 3-plus-3 proposal, as I understood your answer to Mr. Sisisky's question, it is 3 years to research and develop, and then there is a decision made, and then there will be 3 years to deploy. Is the decision that will be made at the end of the first 3 years a decision on whether the threat is sufficient enough to deploy at that time, or is it a decision based on what sorts of technologies we can get in and what will be the most effective?

Admiral West.

Admiral WEST. I think it is a combination of both, sir, but clearly the driving factor is does the threat warrant that it be deployed at that time.

Mr. THORNBERRY. That will be the primary decision that you are talking about in the 3-plus-3 option; it is whether it is a bad enough threat or not. OK.

Mr. WELDON. Would the gentleman yield on that point just for a brief clarification?

Mr. THORNBERRY. Sure.

Mr. WELDON. Admiral West, in your testimony, you mentioned that since the NMD program has usually been designated Major Defense Acquisition Program [MDAP] and is still in the process of developing the actual architecture for an NMD system, do we actually know what the 3-plus-3 NMD architecture is?

Admiral WEST. No, sir. There are some areas that we have not defined yet, and I think one of the areas is the booster that you were talking about earlier. We are going to look at three options in the booster. Another area that we are not sure of yet is what is the early warning radar we are going to use. We are having a systems requirement review this summer to define those particulars.

Mr. WELDON. So that in fact there is a lot of uncertainty with the 3-plus-3?

Admiral WEST. Yes, sir; there is.

Mr. WELDON. Thank you. I thank the gentleman.

Mr. THORNBERRY. That has been a little confusing. So, at the end of 3 years, presumably, you are going to pick one of the other of these two things you have talked about, with a final decision on booster, a final decision on the type of radar, but essentially there is not going to be a third—you are not going to look at Navy Upper Tier for example to fill that; are you?

Admiral WEST. No, sir. This is all a ground-based——

Mr. THORNBERRY. We are looking at strictly ground-based, so basically the universe is the Army system we have heard about or the Air Force proposal with some modifications or improvements.

Admiral WEST. That is correct.

Mr. THORNBERRY. OK. If everybody came together and today we made the decision to deploy, what are the technical difficulties that would prevent us from doing so, and is the quickest you could get something active the 4 to 5 years we have talked about? If all the political issues were resolved, and we said we want to deploy now, quick, what are the technical problems and what is the time period?

Admiral WEST. I think you can ask the Army and Air Force; they are the ones who come up with the emergency response. Obviously, the technical issues are what we have already discussed—what is the booster; what does the kill vehicle look like; how many interceptors do you have; what the threat you are building your architecture to—they are all common to whatever architecture you build, and you have to make those assumptions when you make your decision to deploy.

Mr. THORNBERRY. OK, but before you answer, General Garner, I guess my question is what he said is that you have got to make a decision on which booster. What I am trying to get at is, techno-

logically, are the boosters available from which to choose. Are we talking about just stuff that we know works and is on the shelf, basically?

General GARNER. When I talk to you in the Army program, yes, and I think when General Linhard talks with the Air Force program, the answer is yes.

In terms of risk, with the Army program we propose, technically, we see the risk as being moderate, regardless of which option you choose, because we don't change hardware in any of them. All we do is compress schedules. So the more you compress the schedule from 3-plus-3, the higher the schedule risk is. So I would say that technologically, we say it is moderate; schedule is a function of how quick you want it; the risk there, the more you compress it, the higher the risk. And I would say the risk for cost is probably moderate because the cost estimates we have are based on proven programs. But still, we have not bent metal yet, where we begin to put things together, and you learn more and you develop more cost differentials once you start doing that. But technologically, moderate; cost, moderate; risk and schedule, a function of time.

Mr. THORNBERRY. Well, what is the quickest you could get something up and active?

General GARNER. Well, we proposed a program in 4 years. I will tell you, we do not like that, because we like to do a little more testing than that requires. We are more comfortable with 5 years——

Mr. THORNBERRY. OK. So if you were instructed to do so, you could get it up in 4 years, but the reason you hesitate is because that does not give you enough chance to test the way that various components fit together?

General GARNER. It has limited testing, and we like to be a little bit more sure of our programs before we put them in the field and pronounce them as first unit equipment.

Mr. THORNBERRY. OK.

Mr. WELDON. Would the gentleman yield on that point?

Mr. THORNBERRY. Yes, sir.

Mr. WELDON. Is it money that would help you test more aggressively, or is it a technological problem?

General GARNER. No; it is really neither. It is concurrence. What it means is the more you compress the schedule—you are producing while you are testing, so you begin producing with a pretty good idea that it is going to work, but you do not know the unknown unknowns. So you have built into the program a lot of concurrence; that is what it is.

Mr. WELDON. OK, thank you.

I thank the gentleman.

Mr. THORNBERRY. And I take it from your testimony that assuming 3-plus-3 all fits together perfectly, and the decision is made, we are talking 6 years that you feel confident we can have enough testing there to reduce the risk from moderate to low?

General GARNER. In the 3-plus-3 program or option that we propose, we have robust testing.

Mr. THORNBERRY. And if somebody were to pick 5 years, that would be somewhere in between?

General GARNER. I do not think—personally, I do not think you ever have any program that is low-risk in the missile business, but I would say that as you compress the schedules, the schedule risk gets high. As you stretch it out and go to something like 3-plus-3, it gets moderate.

Mr. THORNBERRY. OK. So we are talking about moderate with 3-plus-3, too?

General GARNER. Yes.

Mr. THORNBERRY. General Linhard, would you care to comment on that from your perspective?

General LINHARD. I agree with the assessment that General Garner gives in terms of the overall program. The main contribution, though, that I think we have suggested is that there is an advantage on occasion to using a hand-me-down Minuteman, and that is that I have flown that Minuteman quite a bit for a bunch of years. And one has to ask—I know quite a bit about the silo, I know quite a bit about the launch crew, I know about connectivity. I know in fact that from Omaha, for example, for an offensive reason, that we have practiced the ability to control that for years. I also know that in fact it has the capability to bus an object into a point in space.

So as we presented our suggestions based on the quest that was involved, we tried to look at the amount of material that currently exists, that in fact you can kind of watch occur because the sensors and the like that we have, most of it in a sense does exist, and we can play with it.

The piece that we do not have that we worry quite a bit about is we do not have the kill vehicle. The program that is put together both by our Army colleagues, but more importantly, the program that we all share in in the Ballistic Missile Program Office, will in fact have as one of the major developmental efforts to make sure it gets the right kill vehicle for the use of our country. That I think is the area that we in the Air Force know the least about, and yet we understand, and we read the literature and understand it.

But I have got to tell you, that is the advantage of hand-me-down Minutemen. You know a hell of a lot about it, and we have used it for a lot of years.

Mr. THORNBERRY. Would you concur, if required to do so, that it could be done within 4 years, although you would not like to do it because it would not be enough testing?

General LINHARD. The biggest question we have is the availability of the kill vehicle, and that is obviously the area that is working for our Department.

Mr. THORNBERRY. That is his neck of the woods. OK.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you for excellent questions.

Mr. Skelton.

Mr. SKELTON. Thank you very much.

I would like to go back to the basics, General Garner. If we could turn the pages back just a few days to the 1990–1991 Desert Storm era, the American troops were attacked by missiles, Scud's, as were communities in Israel by several Scud's; am I correct?

General GARNER. Yes, sir.

Mr. SKELTON. At that time, we had a system that was somewhat effective, the Patriot system, and some Scud's got through, some

partially got through, and the vintage system was not perfect; is that correct?

General GARNER. That is correct. We assessed it as being 40 percent successful in Saudi Arabia and about 20- to 25-percent successful in Israel, and I think we counted about 88 launches from the Iraqis.

Mr. SKELTON. Very good; thank you.

As I understand it—and this is pretty basic stuff, General—you have three areas of concern. We have been discussing national missile defense which, of course, would be incoming intercontinental ballistic missile from somewhere into 1 of our 50 States. Then you have theater missile defense, which would be in the event of a Saddam Hussain shooting at our troops somewhere in Saudi Arabia or the like. And then you have a problem, as I understand it, with frontline missile defense, and I understand there is a proposal called medium extended air defense system [MEADS] or CORSAM MEADS to protect the front line troops.

As the situations exist today, could you tell us, all the way from the front line to the theater to the national level, what we can do to protect: (a) our troops; (b) our troops and rear areas; and (c) our Nation?

General GARNER. Yes, sir; I will give that a try. Let me start with the forward line of troops. The problem we have there is the fact that we maneuver, and we do not have a missile system that maneuvers with the force. So that generated an Army-Marine Corps requirement that the Army called CORSAM and the Marine Corps called MSAM, and ultimately became part of a German-American co-development program called MIADS, and that is designed to protect the maneuver force against both tactical missiles, very short-range tactical missiles, launched from as close as 30 kilometers out to as far as 700 or 800 kilometers, and also protect them from cruise missiles.

Now, as you step back from that, if you look at defending airfields, ports, debarkation, embarkation, arrival airfields, et cetera, you begin to take on a deeper threat, one of missiles that can be fired at you from as close as 100 kilometers to as far out as 3,000 kilometers. That requires a layered defense. As you get missiles fired between 100 kilometers out to around 1,000 kilometers, you need a system like the Patriot system, which the Navy calls a lower-tier system.

As you get into the range of missiles that are fired at you from greater ranges than 1,000 kilometers, those missiles really become exo-atmospheric, and you need a different system; that system for the Army is called THAAD, and for the Navy, it is called upper tier.

So you need a layered defense—one for the maneuver force and then two types of missile systems for your more static assets—to take on the range of the threat.

There is just not simply today one missile system that can protect you from very short ranges of 30 kilometers all the way out to 3,000 kilometers and maneuver with the force.

When you take the next step for us, our Nation, to national missile defense, then we bring on the intercontinental ballistic mis-

siles, and that requires an NMD system, and none of our theater missile defense systems are capable of engaging an ICBM.

I do not know if that——

Mr. SKELTON. Do you remember the days of the Nike missiles?

General GARNER. Yes, sir.

Mr. SKELTON. What did they do? What was their mission?

General GARNER. Well, there were two versions of the Nike. There was a short-range version of the Nike fielded in the early fifties called Nike Ajax, which was a liquid-fueled missile system initially deployed in many batteries in the United States and also overseas. They were very static. They were moveable but not mobile.

Those were replaced eventually by the next version of the Nike missile system called Nike Hercules. The Nike Hercules was a much more robust missile and had longer ranges out to around 100 miles, and was nuclear-tipped. And if I remember right, the nuclear rounds in it were 2 kt, 20 kt and 40 kt. And they were really designed initially for the protection of the continental United States to be able to fire a nuclear round into massive incoming aircraft and take all of them out. They are also deployed overseas, in Korea and Germany.

Mr. SKELTON. It seems that——

General GARNER. And they also were not mobile; they were moveable.

Mr. SKELTON. Thank you.

It seems that one of the points of discussion is what the American people think, and it has been mentioned several times that many American people evidently think that there is a national missile defense system.

In light of your testimony, I would also say that many Americans think there is a theater missile defense system to protect our troops, our airfields, our airports.

I also think, in light of your testimony, that most American people would think that we could protect the front line maneuver troops against incoming missiles.

So this is not a matter of what the American people think; it is a matter of what we can do with the resources that we have. General, in your opinion, which of the three areas is the most important?

General GARNER. Well, like I said earlier, in combat, you give your opponent multiple ways to die; so if you do not want one of them, you just pick the way you want to die. So I would not shred out priorities for you.

Mr. SKELTON. Thank you.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Skelton.

Mr. Everett.

Mr. EVERETT. Thank you, Mr. Chairman.

I understand the chairman has touched on this earlier, General Garner. I would like to talk about the joint program the Pentagon office has created within the Ballistic Missile Defense Organization to manage the National Missile Defense Program.

This leaves BMDO with both oversight and execution responsibilities. Are you familiar with any other program or organization that has both oversight and execution? Is this new, or——

General GARNER. I may be wrong, but I do not know of another program where we have not had one of the service as the executing agent for the program, so I think this is a first—it may not be, but to my knowledge, it is a first.

Mr. EVERETT. Could this program arrangement impact the services' ability to deploy a national missile defense program, and if so, how?

General GARNER. What is unclear at this point is who is the user. I think that if the Army is not the user for the Army pieces, and the Air Force is not the user for the Air Force pieces, there could be some problem. And I do not think we have gone down the Joint Program Office [JPO] road far enough yet to work all of those problems. But generally what happens, as I said, is you have a service that is the executing agent; he has a user, one of the services is the user; and right now, it is not clear that we have made those delineations yet, but we have not gone that far down the path of the Joint Program Office [JPO] yet.

Mr. EVERETT. One final question. How would this arrangement affect the current contractor teams that support the Ballistic Missile Defense programs?

General GARNER. I do not know the answer to that, sir.

Mr. EVERETT. You need to go down the road a little further.

General GARNER. Yes. It is unclear at this time.

Mr. EVERETT. OK. Thank you.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Everett.

Mr. Taylor.

Mr. TAYLOR. Mr. Chairman, I have read the testimony but I am going to pass; if you do not mind, I would like to retain my time.

Mr. WELDON. Absolutely.

Mr. Geren.

Mr. GEREN. Thank you, Mr. Chairman. I missed the first part of the hearing, and I hope that I am not going to ask a question that has already been asked; if I am, please tell me, and I will just refer to the record.

How does what we are trying to accomplish compare to what the Israelis are doing and what we are helping the Israelis do? How would you describe the objectives of their national missile defense system, and what kinds of technologies will they bring to bear in pursuit of their national missile defense system?

General LINHARD. I can make it very easy. Quite honestly, in my job, I am not currently familiar with the details of the Israeli system. I have just gotten it anecdotally, so I would refer to my BMDO colleague.

Mr. GEREN. OK.

Admiral WEST. I think I would like to refer to what General Garner said, that our theater missile defense is around—the maximum range of the threat is about 3,000 to 3,500 kilometers, which relates to a speed of the incoming weapon. To Israel, our theater missile defense is their national missile defense, and there is a lot of synergy between their Aero program and our upper tier wide area

defense system, like THAAD, and we have exchanged a lot of technology with them on that.

Mr. GEREN. General Garner.

General GARNER. The Israelis have a far different problem than we have. The Israeli problem stems at the beginning with 122-millimeter rockets being launched in the northern frontier into the towns all the way back to engagement by tactical ballistic missiles. So again, as Admiral West said, their TMD program is their NMD program, and they do not have, to my knowledge at this time, a threat by ICBMs. So they have focused on a very robust TMD program which they call in some cases a national missile defense, because it is defense of their homeland.

Mr. GEREN. So for those who are trying to compare what they are doing to what we are trying to do, the theater missile defense would be the most appropriate——

General GARNER. A better analogy is the synergy between the Israeli program and the United States program is in the theater missile defense arena.

Mr. GEREN. All right. Thank you.

I have no other questions, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Geren.

Mr. Longley.

Mr. LONGLEY. Thank you, Mr. Chairman. I missed the earlier part of the hearing, but it is good to see General Garner and the other members of the panel.

I would like to ask the panel to comment on the suggestion that has been made that we should be making greater use of the Navy's Upper-Tier program. I would just preface the question by suggesting that we have already invested well over $50 billion in the platform, the Aegis destroyer, a very powerful radar system, and I would be interested to know exactly what is the potential of the Upper Tier system, where are we, is it a serious candidate short-term, and where does it stand or stack up vis-a-vis the other major programs?

Admiral WEST. The Navy Upper Tier program as it is currently configured, which the Navy calls the Navy Lightweight Exoatmospheric Projectile [LEAP] or Navy Upper Tier system, has a very limited capability in national missile defense, not only from the Vertical Burn-Out [VBO], the missile, which is rather low, but also the capability of the kill vehicle, which is limited.

Mr. LONGLEY. So what is its capability, then? Is it a theater system?

Admiral WEST. Yes, sir, it is; it is a wide area theater system.

Mr. LONGLEY. Does it have any potential as a national system?

Admiral WEST. Yes, sir, there is potential to have a maritime capability, but it is not based on the current configuration of Navy Upper Tier missiles.

Mr. LONGLEY. Could you elaborate on the latter part of that statement?

Admiral WEST. Yes, sir. You would have to get increased speed; you would have to get up in the range of what we have been talking about earlier for national missile defense—higher than 4, up around 6, 7, 8—to have the capability; and you would have to have

a much more capable kill vehicle that has the ability to discriminate and have the divert to do a much faster intercept.

Mr. WELDON. Would the gentleman yield on that point?

Mr. LONGLEY. Yes.

Mr. WELDON. Admiral, are you saying that the Navy Upper Tier could give us an NMD capability, and would it give us the same effective rate in terms of what we are talking about here, absent the ABM Treaty?

Admiral WEST. The current configuration, no, sir.

Mr. WELDON. In the current configuration. How about an enhanced configuration?

Admiral WEST. If you redesigned it, I am sure you could come up with the capability, yes, sir.

Mr. LONGLEY. I yield the balance of my time. Thanks.

Mr. WELDON. Thank you.

We are going to go to a second round, so if you stick tight, members, you will get another chance; and if we need to, we will go to a third round.

Let us go back to the discussion that occurred on Israel's need for missile defense and specifically the Nautilus and Tactical High-Energy Laser program; that was raised I believe in your testimony, General Garner.

We heard a lot of hype in April about an initiative. Admiral West, I guess I would ask you, or maybe General Garner, has the administration given us a request as to what they want to spend on this program, and is there a program?

Admiral WEST. We are not following that program, sir. I will refer to General Garner on that.

General GARNER. We spent a lot of time working with the Israelis in the last 3 months. Right now, we are working on phase one of the program. The funding level for that phase is $70 million, and phase one completes the functional tests of the system, and that will be performed at Capistrano. What that amounts to is a spec test. In other words, does the pointer tracker point in the right place, and can the laser sheet—can you turn fuel into photons, that type of thing. That is scheduled to be finished at the end of fiscal year 1997.

It is a high-risk and cost-end schedule. The technical risk is probably low to medium.

Now, the $70 million is comprised of $50 million from the United States and $20 million from the Israelis. The $20 million from the Israelis is supposedly in a bank in New York, waiting for a signing of a United States-Israel Memorandum of Understanding [MOU], and I do not know the status of that MOU at this time. But the Israelis claim they are literally standing there, holding a check in their hands, waiting for us to do that.

We in my organization have put $2 million into that program to jump-start it, and the $2 millon is $2 million that the Congress plussed us up last year in 1996. The Israelis have said they will add $1 million to that. So the remainder, $47–$48 million from the United States, will be, I believe, in FY97 dollars. Now, where these come from has not been identified at this time to my knowledge.

Mr. WELDON. General, I hate to raise this issue, but we are so frequently criticized on this committee for plussing up accounts be-

cause of priorities that we see and hear from the service leaders and chiefs that we feel we have to take exception sometimes to budget numbers given to us by the administration. We have done that with previous administrations as well. But isn't it true that the money you are referring to was actually requested in fiscal year 1997 to shut down the Miracle Laser Program? Wasn't that the original request for that money?

General GARNER. We have been on the verge of shutting down the Miracle Laser Program since 1994, and that program has been kept alive by the Congress year-to-year at a level of effort of $25 to $30 million a year.

Had it been shut down, we would not be able to do the things we are doing now.

Mr. WELDON. So in effect, this priority that we have now identified for which we have no funding request, we would have a very difficult time meeting it if we had not in fact provided funding over the past 4 years; is that correct?

General GARNER. That is correct, yes, sir.

Mr. WELDON. My next question is for Admiral West. Admiral West, I read the 60-page document that was done on the Minuteman option, and I thought it was very thorough. Yet when Deputy Secretary White wrote in response to my friend and colleague Congressman Spratt's request for detailed cost information, there was only a 15-page summary sent which included only the total cost of each proposed option. Mr. White's letter also stated, and I quote, "The Air Force and Army options had obvious omissions and may be substantially understated."

Since Mr. White's letter did not say what these supposed omissions are, could you share with us what these "obvious omissions" are?

Admiral WEST. I think the concern, sir, on the submission of the costs is the detailed costing, which we have not had a chance to do as of yet on the cost of the infrastructure of the booster, the integration of the kill vehicle for the booster, et cetera.

Mr. WELDON. I do not think that is an obvious omission. That might be a justifiable discussion and debate over cost. But he said, and I quote specifically, in quotes: "obvious omissions." Do you know what they are?

Admiral WEST. No, sir. I am not sure of the "obvious omissions."

Mr. WELDON. General Linhard, do you know what the "obvious omissions" are?

General LINHARD. Sir, I would defer to my colleague.

Mr. WELDON. General Garner, do you know what the "obvious omissions" are?

General GARNER. No, sir.

Mr. WELDON. I thank the three of you for your comments.

General Linhard, you have been an expert in this country in terms of targeting missiles, and part of our problem with this whole debate is that we have to some extent as national leaders created a perception out there that people should not worry. And I just want to pursue one thing—and you are probably as well-versed on this issue as anyone in this country—and that is the whole issue of targeting. Wasn't one of your previous positions the job of targeting our missiles?

General LINHARD. Yes, sir.

Mr. WELDON. And how long did you do that, general?

General LINHARD. I was the planner for Strategic Air Command for U.S. TRATCOM for about 2 years.

Mr. WELDON. General, there have been certain statements made by our national leaders, perhaps in both parties, that we can sleep safely now in this country because there are no longer Russian nuclear missiles targeted at America's children.

General, how long does it take to retarget a strategic offensive weapon?

General LINHARD. It is a matter of less than a minute.

Mr. WELDON. Less than a minute?

General LINHARD. Yes, sir.

Mr. WELDON. I think when we get down to talking about perceptions and about why the American people perhaps do not understand what we are talking about here is perceptions that are created by some of us in Washington. In each of the last two State of the Union Addresses, that was a key theme that was reiterated by the President, and I think unfairly so, because while I may not agree with him, I think we have to have an objective discussion of what reality is in this country, and I do not want to go back to the tone that somehow we think there is going to be an all-out attack by the Russians because I do not believe that. But I think we also need to deal with this issue in a rational, realistic, and logical manner, which is what we are trying to do. And I applaud each of you because I think you are doing that in your responsive roles as leaders of the Pentagon establishment.

Let me ask you a follow-on question. Do we in this country have a way of verifying that the Russians have detargeted their missiles?

General LINHARD. Sir, we have had discussions with our Russian colleagues, but the commitment made on our part and our Russian colleagues are that the missile sets themselves are detargeted. It was a political statement; it was not given the same realm of verification as we would a negotiated agreement.

Mr. WELDON. Does that include SLBM's?

General LINHARD. Yes, sir, it does.

Mr. WELDON. So in other words, we do not have an objective way; it is simply that we are taking their word, and they are taking our word?

General LINHARD. That is a matter of policy on both sides.

Mr. WELDON. Thank you.

Let me go to Mr. Spratt, and then I will come back for a third round if we have time.

Mr. SPRATT. Thank you, Mr. Chairman.

General Linhard, in your written testimony, you said that this was a treaty-compliant path, the proposal to use Minuteman. Article 6(a) of the ABM Treaty states that each party will not "give missiles, launchers or radars other than ABM interceptor missiles, ABM launchers or ABM radars capabilities to counter strategic ballistic missiles or their elements in flight trajectory and not to test them in an ABM mode."

How do we get around article 6(a)?

General LINHARD. Sir, we believe that in assessing the option that we have suggested, obviously, as with any of the options involved right now, there are ABM Treaty issues. I spent 8 years of my life doing this for a living, and I guarantee you that there is a long legal debate that one might have on this.

Our assessment was that we believe that this is not obviously treaty noncompliant, and I believe that we can explain how, under the terms of the treaty, we do not undercut the letter and the spirit of the treaty.

In this case, what we have suggested is that by using both the ABM and the START Treaty, and basically, not removing the Minutemen from their START Treaty provisions, that there are sufficient grounds that a reasonable argument can be made that this would not be a violation of the treaty itself, and it would be acceptable.

But sir, we have not had a treaty compliance review, and my service does not do that; we are offering an opinion. The best way to get that review is from our Department, which will be done.

Mr. SPRATT. Well, are you taking the position that if we took the warhead off and the post-boost vehicle off, then it would no longer be a ballistic missile, and then we could change its character, transform its character, from an offensive system to a defensive system, and it therefore would not violate article 6(a)?

General LINHARD. We are arguing that it is a reasonable position, based on similar activity that we have seen in both the START Treaty and the ABM Treaty in the past, and it is matter of judgment, sir. I mean, clearly, there are a number of other areas in these proposals that are a matter of judgment, and I can guarantee, based on my own experience, that up to the point when we as a Government appropriately make a final legal opinion on this, I would not begin to argue that there are not issues; there certainly are.

I also can guarantee you, sir, that I could fill this room with legal opinion probably on both sides on that one. I think we have tried in good faith to find some solutions that had some merit.

Mr. SPRATT. Well, I know there are all kinds of problems that all of these systems encounter in complying with the ABM Treaty, but most of them are sort of oblique. This is kind of a head-on problem, and that language is just about directly opposed to what you are proposing, it seems to me.

General LINHARD. I would gladly provide to you for the record our legal views on that point and any others that you might wish, but quite honestly, the issue will not be resolved. I want to make sure I am presenting our view correctly. We are part of the program of our department. We have offered a solution to that. We have tried to craft it to allow it to meet the parameters that were asked—that it handles a very, very light threat, the rogue nation threat; that it does it in an ABM Treaty-compliant manner; that it does it reasonably quickly within the near term; and that the cost is in balance with the lightness of the threat that it handles. So we have made those offers, sir.

Are there treaty issues? Of course there are. We believe, though, that we have taken the necessary steps that would at least argue

that there are no obvious fatal flaws. But the judgment needs to be made first by my department and then by our administration.

Mr. SPRATT. I do not want to start a fight here, but General Garner I think said the Army felt that there were some substantial problems with the use of the Minuteman.

General GARNER. We could sit here and argue boosters all day long. The way to cut to the chase is to go out to industry with an RFP based on performance, cost and integration, and let them come back and tell you what they think the booster ought to be.

General LINHARD. And of course, for our part, we would argue that as you look at the cost and the availability, we think we have a reasonable point that this is not a violation. And I will gladly provide for the record the underpinning for why we think that specific provision allows us to move in that direction.

Mr. WELDON. Would the gentleman yield on that point?

Mr. SPRATT. Sure.

Mr. WELDON. Isn't it true that the ABM Treaty was designed so that neither side could establish a defensive system that would give them an obvious advantage over the other side and take away from mutually-assured deterrence—and what we are talking about in these cases is not in any way designed to meet the threat of a massive Russian attack. I mean, even the Russians and we acknowledge that that is not what we are talking about here.

We are talking about a very limited protection, against a very limited attack on this country, much like the Russians already with their ABM system around Moscow.

Mr. SPRATT. I would agree with the gentleman as to the spirit of it, but we are looking at black letter provisions of it, and it would seem to me that these fly right in the face of it, but——

General LINHARD. Sir, if I may make one more simple observation. Treaties—if you think about the current situation, the treaty that we are currently trying very hard to remain in compliance with is a treaty that we negotiated with a country that has changed its fundamental nature. We and the Russians have had to adjust to that. The radar, some of the black letter law that was associated with the treaties, had to be interpreted to allow us in good faith. And in fact, here we have a situation that we continue that evolution. You remember the positive additional comments that both President Yeltsin and President Clinton made after the Washington summit, discussing how we might move forward.

So I agree fully, sir. I think that there are certain provisions in the treaty which are black letter and that one has to judge would be a very, very serious and immediate public challenge. There are other portions of the treaty that I think we would at least—in good faith, we are making the argument that we have structured this so that there is a very good chance that colleagues could agree that we are not fracturing the treaty.

And quite honestly, I have talked this about quite a bit, and we have not had that kind of a reaction, but the proof of the pudding for all of this, of course—and we stand by it—is that our Department and then our Government can make compliance judgments, and we can give you all the information you would like on that provision.

Mr. SPRATT. I do not want to overdo it, particularly because it is a hypothetical question, but we would like a response if you would give us one.

General LINHARD. Of course.

[The information referred to follows:]

Article VI(a) of the ABM Treaty does prohibit giving ABM capabilities to non-ABM missiles, launchers and radars. However, the purpose of this provision (as is clearly shown in the supporting documentation provided by the Executive Branch to Congress prior to ratification) was to prevent modifications to widely deployed air defense systems for ABM purposes. In this regard, the two specific concerns that Article VI(a) was written to ameliorate were: (1) dual use systems which would have ABM and other capabilities at the same time—resulting in unaccounted ABM capability; and (2) rapid, unconstrained breakout potential through conversion of non-ABM systems to an ABM role. The interceptor intended for use in the Air Force option does not raise such concerns. First, the interceptor will not have dual use capability. Furthermore, no unconstrained breakout potential exists because the creation of the defense comes at the expense of the offense.

In addition, the interceptor in the proposed Air Force option will be subject to START rules governing creation of a "new type" ICBM—even though, in a general sense, it is not an ICBM. For START purposes, these interceptors will be distinct from the remaining Minuteman III, Minuteman II and Peacekeeper ICBM forces. As a result, the use of the interceptor for a defensive role will not contaminate the remaining Minuteman IIIs. Once converted, we anticipate it will be an ABM interceptor—not a "non-ABM" missile and will be covered by the relevant provisions regarding ABM systems.

While your question centered on the interceptor, Article VI(a) also constrains non-ABM launchers and radars. The Air Force has considered these constraints in its NMD option and would be happy to elaborate if desired. In our view, none of the components in the Air Force option will violate Article VI(a). Of course, the ultimate compliance decision will be made at another level. From a broader arms control standpoint, the Air Force option offers benefits over other national missile defense options. As a result of the interceptors including START-accountable first stages, the interceptors would likely be subject to both the ABM and START Treaties. As a result, the ABM interceptors would be subject to START's verification provisions (inspections, notifications, data exchanges), thereby increasing Russia's confidence in U.S. compliance on defenses well beyond that which could be achieved using the ABM Treaty's verification measures alone. By using START-accountable items to create and deploy ABM interceptors, the strategic offensive force would be reduced correspondingly. This is a benefit since the U.S. could send no more powerful message about its peaceful intentions than by deploying defenses at the expense of the offense.

Again, this reflects the Air Force opinion regarding the ABM and START Treaty compliance of a hypothetical missile defense system. The Department of Defense will consider the treaty compliance issue once the technical design and program parameters are defined, if it elects to move forward on this particular missile defense option. Air Force views should not, therefore, be interpreted as a Department of Defense position on the treaty compliance question.

Mr. SPRATT. General Garner and General Linhard, last year, we mandated an IOC for the Space and Missile Tracking System [SMTS] in the conference report, 2003, and it is my understanding that if we foresee the space missile tracking system, the Brilliant Eyes II deployment in that year, that we may have to compromise some of the technology involving the cryo-cooler, the focal plane medium, and that it may not be optimized for theater missile defense, although we will probably adequately handle the national missile defense mission. It may also have to be compromised with respect to the technical intelligence functions we wanted to load onto that system.

Could you comment on the problem of forcing an over-early IOC on the SMTS?

General GARNER. Well, SMTS is an Air Force program, so I would defer to General Linhard for comment.

Mr. SPRATT. Fine. You are going to be user of it, but let me go to General Linhard, then.

General LINHARD. We have right now within the administration, with the program, a response—we are looking at our overall ability and intent to handle the direction of the Congress. I know that my colleague from BMDO is prepared to mention that, and we support that program.

Mr. SPRATT. Well, I support it, too, but the question is what happens if we deploy it in 2003 as opposed to letting it be technology-driven and deployed in 2004 or 2005, give it a couple more years for the perfection of the cryo-cooler and the focal plane array, and I think there is also a signal processor problem that it has a lot greater capacity for handling several Major Regional Contingency [MRC's] plus an NMD system if we allow these signal processors to mature also.

All of these are correct problems if we force it?

Admiral WEST. Yes, sir, that is correct. And we owe you an answer, and I think it was due a while back; I think we are late in answering your question, and Dr. Kaminsky is addressing that and expects to have an answer for you in late July. But we are addressing the very concerns you just listed, sir.

Mr. SPRATT. Well, could we get an answer in time for our debate next week?

Admiral WEST. I will try, sir.

Mr. SPRATT. OK, thank you, sir.

Let me ask you, Admiral, while you have the microphone, about the Navy systems, because there are some people around here who are fonder than I am of the Upper Tier. While I think it ultimately belongs in the family of theater missile systems, I would do it behind the THAAD rather than concurrently with the THAAD, for affordability problems among other things. But there are others who extrapolate from that potential to the possibility of giving the Navy a major role in national missile defense.

Is the *Aegis* cruiser as a platform today both to launch a missile with enough kick to get up to 7 kilometers per second, and also its radar—is it up to the mission of engaging in national missile defense?

Admiral WEST. Whether you can put a missile on an *Aegis* ship with a vertical burnout [VBO] of 7 or not remains to be seen; we could probably technically do it, but we have not looked into the details of that.

The current *Aegis* radar is limited rangewise and probably would be very limited in an NMD role, yes, sir.

Mr. SPRATT. So it would require SMTS or something like that—an offboard sensor at the very least——

Admiral WEST. SMTS, offboard sensor, combined with fire control data net or something like that to make the difference, yes, sir.

Mr. SPRATT. And would you anticipate that its mode of operation would be to intercept in the ascent or boost phase as opposed to midcourse or late midcourse?

Admiral WEST. It could be used, of course, in the theater missile defense; a primary mission of it is in the ascent phase. I am not sure where the offensive missiles are located, if that is feasible, and you would probably use it more in the defensive role.

Mr. SPRATT. One final question. When we talk about the Taipadong II, we reify a lot of intelligence information, and we make something seem real that is a long way from being tested.

To your knowledge—and can you state in the open record—have we ever seen a Taipadong test-flown?

General LINHARD. I cannot comment on that.

Admiral WEST. I do not know if we do, sir.

Mr. SPRATT. General Linhard?

General LINHARD. I cannot comment on that.

Mr. SPRATT. OK—you do not know, or——

General LINHARD. I will be quite honest with you. I have not looked at that program, and I personally do not know.

Mr. SPRATT. General Garner?

General GARNER. I do not know that we have seen that program through national technical means having been flown.

Mr. SPRATT. OK. Thank you.

Thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Spratt, and we will come back if you want to stick around.

Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman.

Let me pick up on Mr. Spratt's question. I hope the theme now from the other side is not that we wait until we see the system that we cannot stop test-flown before we start building our system to defend against it.

But let me ask about the 3-plus-3 in a little different way than other members have asked. Once we have developed a national missile defense system, we figure we can deploy in 3 years. That is the essence of it, right?

Admiral WEST. Yes, sir.

Mr. HUNTER. That is another way of saying that if the bad guys decide to shoot at us within the 3 years of our becoming concerned, that we are vulnerable. Is that right—because they have a 3-year window in which we do not have a defense.

Admiral WEST. That is correct, but I think if we were faced with that, we would look very hard at reducing that 3 to whatever we could.

Mr. HUNTER. So you think we could streamline somewhat?

Admiral WEST. I think there are options, and there are some things like infrastructure that you are limited by time, contractual with industry, that you are limited by time, but there are options you can look at to possibly strengthen——

Mr. HUNTER. OK. That takes me to my next question. Is acquisition streamlining—and the Clinton administration is pretty proud of that; they have talked a lot about that, and I think we have done some good things working in partnership to streamline acquisition—could acquisition streamlining compress that schedule, the 3-year schedule?

Admiral WEST. I am not sure it can compress that 3-year schedule, because I think it is more to do with some of the issues I just told you about. But I will tell you that the NMD program that is being managed by the JPO will execute acquisition streamlining at its best; I mean, we are integrating it from the ground up.

Mr. HUNTER. OK. But the 3-plus-3 means you develop for deployment, and then you take 3 years to deploy a system.

Admiral WEST. Yes, sir.

Mr. HUNTER. That is based on the idea that you are pretty conclusive about having 3 years of warning time to build a system. Is that right?

Admiral WEST. That is correct.

Mr. HUNTER. I asked this question of our agency gentlemen, the intelligence gentlemen who helped put together the "National Intelligence Estimate." I asked them three questions. I asked them which of them predicted the Falklands crisis. I got none. Do you folks know of anybody in your relative intelligence systems who predicted Falklands?

Admiral WEST. No, sir.

Mr. HUNTER. I then asked them a little bit easier one. I asked them if any of them predicted the collapse of the Soviet Empire—something that was in all the papers. None.

I then asked them if any of them predicted the invasion of Kuwait. None—although one gentleman asked me if it was before or after the tanks started rolling. I said, no, you have got to play by the rules; it cannot be after the tanks start rolling.

So you have zero for three on three major strategic events in the last 20 years that were of some import in world history. Our intelligence agencies did not predict any of them, which is not to say they are not good intelligence agencies, but it does show that unusual things happen and that it is very tough to predict world events.

Now, Mr. Spratt talked about the ability to mature technologies and how we have some glitches here, and we should try to mature these technologies before we build a system. Would it not be fair to say that in the year 2003, if you are sitting here, or 2002, if you are sitting here—and Mr. Spratt and I are both sitting before you; that may be an argument for term limits—but would it be reasonable to say that you could probably sit there and tell Mr. Spratt, here is another array of maturing technologies, and if we just wait until 2010, they will be ready to go? Is that a possibility?

Admiral WEST. Yes, sir, that is a possibility.

Mr. HUNTER. My point being that we are living in the age of an electronics revolution—as I understand it, today the same dollar in electronics will buy you roughly 4 million times as much computing power as it would 20 years ago—this enormous acceleration in technology development means that if you want to wait until you have a mature system, or you want to wait until the end of the electronics revolution, you will never build, because by the time you get to deployment, your R&D section can already show you 15 things that if you just waited, you could do a little better if you wait for a couple years.

Is that something, incidentally, that you run into in your business because that is what you do, Admiral West—how do you handle that?

Admiral WEST. That is true, sir; but I think we made a decision, and I agree with General Garner that the technology that we have for national missile defense is pretty common across all the options that are at this table today, and we are about to say they are the

ones we are going to use, and we need 3 years to get them developed and another 3 years to put them in the field.

Mr. HUNTER. So at some point—tell me how you handle this thing. You have people in your shop who are coming to you on a pretty regular basis, showing you how certain things are evolving and maturing that will save you money if you just wait, and you do not build now. How do you handle that? That happens to a lot of weapons systems now.

Admiral WEST. That is correct. It happens in the theater missile defense weapons, too, but you have to make a decision.

Mr. HUNTER. So you just make a decision, and you build something?

Admiral WEST. Yes, sir.

Mr. HUNTER. OK. Do you see any way around that?

Admiral WEST. Of avoiding that issue?

Mr. HUNTER. Well, of seeing to it that you always take advantage of this rapidly developing technology; is there any way to get all of the rapidly developing technology in the system you are trying to build now?

Admiral WEST. Yes, sir; and that is why you use product improvement for follow-on systems, et cetera. You certainly do not want to squash the ability to bring all that to the table and decide what is the best way to go.

Mr. HUNTER. But you get it in after you have built the system; you try to incrementally improve the system?

Admiral WEST. Yes, sir.

Mr. HUNTER. OK. General Garner, let me ask you one fast question on a related system that we beat up and bounced around this committee, but you thought at one time had some merit; I think it has some merit, at least in terms of testing it. That is our Dagger system. My understanding in the end was that for about $6 million, the contractor could take it out to the missile testing range and shoot a moving target with that thing—at least make the test.

Admiral WEST. Yes, sir; that is what the contractor told us. Our problem with that is because of the limited funding in the Army, even if that had been successful, we could not guarantee to you that we would fund it in the future, and we certainly had not funded it in the 9803 POM.

Mr. HUNTER. But at least you could give the results of the test to Congress, and if we wanted to go with it, we could go with it.

Admiral WEST. You can do that. Our fear was that we walked you out on a limb and then left you there because we were not going to fund the tail of that——

Mr. HUNTER. Well, we are not worried about being on limbs. It seems to me if you can get the test for $6 million, that that is something of value, and I would hope maybe we could work together and try to come up with a way to test.

I know the chairman of the R&D Subcommittee was worried about this or concerned with that issue also, and we had a lot of information coming in, but in the end, these guys said they could shoot down a simulated fast-moving target for $6 million. There are not too many $6 million tests out there that would tend to validate a system. So if we can get to that point, that might allow us to make an intelligent decision on whether we move forward.

May the record reflect that General Garner nodded his head in agreement with that last statement.

Thank you, General Garner, and thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Hunter.

Before we move to round three, Mr. Thornberry or Mr. Edwards, do either of you have second round of questions you would like to enter into?

Mr. EDWARDS. Yes, Mr. Chairman.

Mr. THORNBERRY. Yes.

Mr. WELDON. All right. Why don't we start with Mr. Edwards?

Mr. EDWARDS. Thank you, Mr. Chairman.

If the issue becomes whether we deploy a system within 6 years or 5 years or 4 years—Mr. Thornberry touched on that question, and I believe, General Garner, you said there would be some concurrence problems there. I was not here during the decisions made in regard to the B–1 bomber, but General Linhard, perhaps you are far more familiar with that program than I would be. But didn't we, objectively speaking, taking the politics out of it, get into some difficulties with the development of the B–1 because we were pushing fairly quickly, and testing was not allowed to occur in the way that we normally would, and we got into some concurrence problems that the B–1 program today is still plagued with, partially because of that? Is that somewhat correct?

General LINHARD. Sir, I believe we had some challenges in concurrence which affected subsystems especially on that system. I am not a system expert, but I remember the incidents that you are talking about.

Mr. EDWARDS. But you would all agree that concurrence problems could be very serious problems in a program such as this if you do not pick a date—if you try to compress the schedule too quickly, that is not a minor problem; that is a serious problem that could affect the effectiveness of the system. Would you all agree with that?

Admiral WEST. Yes, sir.

General GARNER. Yes.

Mr. EDWARDS. Great. One other brief question. Throughout this whole discussion—and this has been a very productive hearing today, I believe—there has been no discussion of space-based interceptors, and I do not want to take too much time on that, but I would like to ask each and every one of you to answer if you would.

With the limited resource that we presently have, do any of you think that we should take a significant amount of resources and put them into development of a space-based interceptor system; and if not, why not?

General LINHARD. I think our programs, the departmental programs, should be driven by the threat and the requirement involved and the availability of technology to do that. Right now, there are a number of programs that are space-based in which we get high return for the ubiquitousness of the program itself, its perspective, its view. Most of them are sensor programs, in fact, that provide either a direct warning or kind of a sense of where we are on the court that is necessary, not only for any hope of defending our theater forces from attack in a broad sense, but also the ability

for us to have some dominance in our understanding of the battle space.

Mr. EDWARDS. But not space-based interceptors.

General LINHARD. That is right, sir; and the question then that comes up is, "Is there an assessment right now that there is both a threat, the requirement and the technology?"

Obviously, somewhere in the future you would want to—I am not sure that I would foreswear doing the technical research that would give me options that may be appropriate downstream, but right now the program that my good friend the admiral is currently pursuing tries to get a balance in that area.

Mr. EDWARDS. Let me ask it for the remaining two in this way. Do you think it would be a mistake at this time, with the limited resources we have for our defense budget, to push for the deployment of a space-based interceptor system? In your opinion, would it be too expensive, and are the technological barriers so high that you think we should put the majority of our resources on a ground-based national missile defense system?

Admiral WEST. Our current program is based on ground-based although the robust capability comes when you go to space, and that technology ought to be maintained at some level for future reference.

General GARNER. I think space-based systems offer great potential, but to date they are unproven. If you are concerned about cost, they are going to be very expensive. And I think that you are really extending the timeframe in which you would have the capability if you say are not going to do ground systems, that we are going to go straight to space. But, certainly, if you have a ground-based system, and then eventually, you move into space, any time you add another layer, you are absolutely improving, sometimes by orders of magnitude, the capability of defense.

Mr. EDWARDS. Right. And I am not even to the point where I would oppose all research for space-based interceptors, but would you agree, General Garner, with some of the estimates that a space-based interceptor defense system could cost anywhere from $30 to $60 billion?

General GARNER. I have no idea what it could cost.

Mr. EDWARDS. You have no idea?

General GARNER. No.

Mr. EDWARDS. But it could——

General GARNER. I am not in that business, but I would say that certainly, sometime in the next century, probably the potential is in space. So that any money you put in the seedcorn of that now could potentially in the future be money well spent.

Mr. EDWARDS. But in your opinion, it is not the difference between the $5.2 billion system and a $10 billion system or a $5.2 billion system and a $7 billion system; it would be a magnitude significantly greater than a $5.2 billion system if we were to push for a space-based interceptor system now?

General GARNER. Well, anything I give you would be speculation, but in my opinion, based on what space things cost us today, yes, it is a significant increase in cost.

Mr. EDWARDS. Thank you.

Thank you, Mr. Chairman.

Mr. WELDON. Mr. Thornberry.

Mr. THORNBERRY. Can any of you compare the options that we are talking about for near-term deployment with what the Russians have now as far as capability?

General LINHARD. I would just make some obvious basic comparisons. We are talking about a situation where the Russian systems today—obviously, they use different kill mechanism. The Russian defensive capabilities are more along the lines of the more traditional systems that we played with earlier. They have a different geometry problem.

So we can give you—there are differences, technically——

Mr. THORNBERRY. But as far as capability, we are talking about creating a thin layer of defense, as everyone says, that would be able to perhaps handle a very limited number of incoming reentry vehicles. What can their system handle?

General LINHARD. The system that they currently have is designed to protect—its basic ability is designed to protect the large portion of populated Russia and specifically the capital. It is geared against threats by a nuclear armed opponent that is known.

They have a different problem than we do in the sense that they do not have the advantage of range from obvious rogue challengers. Their system is in fact a bit older in its capabilities.

I am trying to give you an answer, and I am not sure exactly where I can best help you in this.

Mr. THORNBERRY. I am just trying to make a general comparison, and I realize we may get into some sensitive areas, but if a rogue general in China launches a missile toward Moscow, can they handle it?

General LINHARD. If there is a single—the Russian defensive system is by definition designed to defend Moscow, and to defend it against that type of threat among others, from that quadrant. I mean, let us face it—just like any system that is permitted under the ABM Treaty, at some point it can be overwhelmed.

Mr. THORNBERRY. Sure, sure. So if we were to deploy something like what we are talking about, are we going to end up basically with an equal kind of capability, although the details are different, obviously, in how it works?

General LINHARD. I can make simply an observation, and that is that the system that currently exists in Russia to defend Moscow was optimized for their purpose a number of years ago. What we have been talking about most recently here is to provide kind of a very light coverage, very much in our spirit, over all of our States.

I technically do not believe—and we can look at this and give you a good technical answer—but I do not believe that, with 11 time zones and the like—and I am not sure when that system was in that they were concerned about that threat——

Mr. THORNBERRY. Sure. They have, obviously, got a lot more country to cover.

Mr. SPRATT. Would the gentleman yield for one question?

Mr. THORNBERRY. Sure.

Mr. SPRATT. As an old missileer, would you have any doubt about the ability of Peacekeeper and Minuteman 3 warheads to penetrate the Galash system around Moscow?

General LINHARD. I believe in the context of an appropriately structured retaliatory strike that we could achieve those objectives that we need to allow our deterrent to be solid, yes, sir—penetrate, overwhelm, suppress—but we will use tactics that allow us to achieve the purpose of a deterrent and therefore make it sound.

Mr. HUNTER. Would the gentleman yield on that point?

Mr. THORNBERRY. Sure.

Mr. HUNTER. The Galash system around Moscow relies on nuclear detonation to blow out the incoming missile, and you say that we can overwhelm Galash if we have to with our own massive strategic capability. But what about the same question I asked at the beginning of the hearing with respect to our proposed system. Can Galash effectively, No. 1, knock out a single incoming ICBM coming into Moscow?

General LINHARD. Sir, I would——

Mr. HUNTER. Not an overwhelming attack, but one missile.

General LINHARD [continuing]. Yes; I would believe that, especially the type of hit that we are talking about, which is an existing reentry vehicle into the teeth of the Moscow defensive network and with them using the mechanisms that you have suggested, nuclear, that that missile is going to have a hard chance getting through, to tell you the truth.

Mr. HUNTER. OK. So the point is that if I were a Russian politician asking my military leaders, "I live in Moscow, general. How about that rogue launch of one missile—can you knock that out?" you would probably say, "We are pretty doggone sure we can." Is that right?

General LINHARD. I believe personally, if I were a Russian general, yes, sir.

Mr. HUNTER. Now let us take the same question, with 5 to 10 warheads coming into Moscow. You are the head of the Russian defensive rocketry forces. Can you knock it out?

General LINHARD. Using the kill mechanisms that they are suggesting—they are going to use those mechanisms—if that is the case, then, yes, I believe we could handle a multiple RV attack—5, 6, 10.

Mr. HUNTER. So the question is, at least with respect to Moscow, this question that we are torturing ourselves over, of whether we should have some limited defensive capability and protection, at least the residents of Moscow already have; is that right?

General LINHARD. Yes, sir, that is right.

Mr. HUNTER. Thank you for yielding.

Mr. THORNBERRY. That is all I have, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Thornberry.

We will go into another round now, and just to follow up on what Mr. Hunter said, I think that that is the ultimate point here. The ultimate point is that the ABM Treaty allows each country to have a single system—originally, it was a two-site system—that provides some capability. And you cannot say that we can overcome that system. We know that. I mean, that is a given. But the point is do they have a capability against a limited strike that we do not have. That is the key question, and would all of you please answer that again? Do the Russians have a capability against a one-, two- or three-launch strike that we do not have now?

General Garner.

General GARNER. I think the answer to that is yes.

Mr. WELDON. Admiral West.

Admiral WEST. Yes, sir, around Moscow.

Mr. WELDON. General Linhard.

General LINHARD. Yes, sir, around Moscow.

Mr. WELDON. Thank you. That is the key point, and I think we needed to get that out, and I appreciate our colleague for asking about it.

Let me move on to Admiral West. Are there funds in the FIDIP to implement the 3-plus-3 right now?

Admiral WEST. The development funds are in the FIDIP, yes, sir.

Mr. WELDON. Including the advanced procurement costs for whatever you decide is going to be necessary?

Admiral WEST. We have some procurement costs, yes, sir.

Mr. WELDON. So you are confident in what the President has requested over the—my staff is telling me there are no procurement dollars in there.

Admiral WEST. There is no procurement; we have 2.5 in for the development. Once you make the decision to deploy, we have to add additional funds, yes, sir.

Mr. WELDON. The reason I ask that question is that a lot of members here are skeptical that while we talk a good game about 3-plus-3, we know there are not going to be the dollars there to begin procuring. If you are now procuring, you are just prolonging something beyond the next election, and you are not really serious about deploying. That is what many of us feel skeptical about.

I want to close out my portion of the questions, and then I will follow up with a closing statement, but before that, I will yield to my distinguished chairman and ranking member. But let me just ask a series of questions, since the whole debate comes down to—and as I get back to what I said at the beginning in my opening statement—when the President vetoed the defense authorization bill this year, and we carefully crafted that bill so that it did not violate the ABM Treaty, so that it was not a multi-billion-dollar cost item—in fact, we were making the point that the Air Force and the Army had specific plans that could give us a short-term option that was treaty-compliant—I would like to ask a series of questions, and General Garner, in terms of your option, and General Linhard, in terms of your option, would you simply answer yes or no in your opinion?

In your opinion, General Garner, would you system protect all 50 States against a limited attack of various levels of threat sophistication—a limited attack?

General GARNER. ICBM's.

Mr. WELDON. ICBM's.

General GARNER. Yes, sir.

Mr. WELDON. Would yours, General Linhard?

General LINHARD. Very limited attack, yes, sir, ICBMs.

Mr. WELDON. In your opinion, would the system that you are talking about comply with the existing or modified ABM Treaty, General Garner?

General GARNER. Yes, sir.

Mr. WELDON. General Linhard.

General LINHARD. There are issues, but we designed it to be compliant, yes, sir.

Mr. WELDON. In your opinion, would the system you are talking about maximize the use of previous and current investment and BMDO ground-based NMD elements?

General Garner.

General GARNER. Absolutely.

Mr. WELDON. General Linhard.

General LINHARD. I think ours tends to focus on using the investment that has been made in the Minuteman program itself and the sensors that we own.

Mr. WELDON. In your opinion, General Garner, would the program you are advocating leverage existing Government and industrial infrastructure?

General GARNER. Yes, sir.

Mr. WELDON. Would yours, General Linhard?

General LINHARD. Yes, sir; I believe it would.

Mr. WELDON. Would your system that you are advocating, General Garner, be part of an objective system to be added to and enhanced down the road?

General GARNER. Yes, sir.

Mr. WELDON. Would yours, General Linhard?

General LINHARD. Yes, sir.

Mr. WELDON. Would your system, General Garner, be designed in your opinion to interface with current and projected space-based components?

General GARNER. Certainly. I mean, that would be part of the—in the future, to integrate with space-based components that were added in a layered manner to the defense.

Mr. WELDON. Would yours, General Linhard?

General LINHARD. Yes.

Mr. WELDON. And would your system as you are advocating, General Garner, include a robust ground and flight test program?

General GARNER. Yes, it would.

Mr. WELDON. Would yours, General Linhard?

General LINHARD. It would depend upon the program track record we have already in the systems that we have deployed.

Mr. WELDON. And again, are we talking about a multi—tens of billions of dollars—investment? General Garner.

General GARNER. No, sir. We are talking about a high side of $8 billion, with 100 interceptors.

Mr. WELDON. General Linhard.

General LINHARD. And we have looked only at the rogue nation threat for costing, and our costing data looks at about $2.5 billion for that limited threat, very limited threat.

Mr. WELDON. I thank each of you for coming, and Admiral West, for your outstanding testimony. You have done an admirable job in your first appearance here on the Hill.

The point here is that Members of Congress need to in an objective way look at what work our military has been doing. It is a shame that we had to wait 4 months to get this information out to Members of Congress in an open, objective hearing where members of both sides could ask whatever questions they want, to critique the options. And I am not identifying myself with either of

your options or even discounting the 3-plus-3. But the Members of Congress deserve to have the advice of your expertise and deserve to be able to listen to the options you present and lay out before us as we make these critical judgments in terms of dollar allocations. And you have helped us a great deal today in coming forward, and we look forward to your written response to those questions that you were not able to answer here in person.

With that, I would turn to Mr. Spratt, my friend and colleague.

Mr. SPRATT. I thank you, Mr. Chairman, for holding the hearing, and the witnesses for their responsiveness.

Mr. WELDON. Thank you, Mr. Spratt.

Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman.

Just one fast one that I forgot to ask earlier. CBO came out with numbers that were quite a bit higher than yours; are you aware of that?

General LINHARD. [Nods.]

Mr. HUNTER. Have you figured out how they did that, or how they had different presumptions or calculated differently—what happened?

Admiral WEST. I am not sure I know, sir, but I think the $14 billion was in the ball park when you include 3-plus-3 and the space and missile tracking system [SMTS]. I am not sure what architecture they used for the higher numbers you saw.

Mr. HUNTER. OK. The Air Force, General Linhard, was $2.4 billion, and they came up over $4 billion with that.

General LINHARD. My understanding is that the number that they——

Mr. HUNTER. That is real sticker shock, you know.

General LINHARD [continuing]. Well, the number they came out with, if I remember the press reporting, it was my understanding that CBO basically took a position that said we are going to add $1 billion to each of the options to start with because of understanding risk. And I would ask CBO for that.

If that understanding is correct, then the CBO numbers for us would be about $3 billion and——

Mr. HUNTER. What did they add the billion dollars for—just for the heck of it?

General LINHARD. Sir, I believe that they are concerned about it, and you need to check the way that that costing was validated.

Mr. HUNTER. OK. Maybe we could do this. Could you folks check with CBO and answer for the record—call them up and ask how come we are so far off here; what did you guys do—try to figure it out and give us an answer for the record as to what happened on the way to the analysis because we cannot figure this one out. Could you do that—General Linhard, do you think we could do that?

General LINHARD. Sir, we can try to understand the difference between our estimate and CBO's and get back to you.

Mr. HUNTER. OK.

[The information referred to follows:]

As stated in the Congressional Budget Office (CBO) letter to Congressman Spence on 3 Jun 1996, the cost for the Minuteman National Missile Defense (NMD) option was $4 billion.

This $4B figure is identified as the $2.4B Air Force estimate, $.2B for additional integrated testing and $1B "in anticipation or technological risk", thus bringing the total to $3.6B. The CBO letter than rounded the Air Force option up to $4B.

The Air Force Minuteman System Program Office (SPO) validated cost estimate of $2.4B includes costs for acceptable risk at all levels of system components. The SPO cost estimate is based on an architecture that uses existing components and mature engineering designs for those few existing components that need upgrading for an NMD capability.

I want to join the chairman and Mr. Spratt—both gentlemen whom I really admire and who I think have a lot of light on this issue—I want to join them in thanking all three of you for being with us here today and working these issues with us.

Thank you very much.

Mr. WELDON. Thank you, Mr. Hunter.

One final question for Admiral West—and listen carefully—on TMD. Can you confirm that the Department is not in fact complying with Section 234(a) of Public Law 104–106, the National Defense Authorization Act for fiscal year 1996, which the President signed into law, which set Intelligence Operations Center [IOC] and First Unit Equipped [FUE] dates for THAAD, Navy Upper Tier, and other TMD systems? Is the Department in compliance?

Admiral WEST. With those dates?

Mr. WELDON. Yes.

Admiral WEST. No, sir.

Mr. WELDON. Have you received guidance or direction from the Secretary to modify BMDO's current plans for THAAD and Navy Upper Tier to ensure compliance with the law?

Admiral WEST. We are looking at the best way we can to meet those dates, yes, sir.

Mr. WELDON. Does the Department's current outyear budgets for Navy Upper Tier include funds to reach an IOC for this system?

Admiral WEST. With the Upper Tier system?

Mr. WELDON. Yes.

Admiral WEST. No, sir.

Mr. WELDON. No.

Admiral WEST. No.

Mr. WELDON. Thank you all. You have been very helpful and cooperative, and you have all done a splendid job. We deeply appreciate your commitment to 3 hours before our two subcommittees.

Thank you very much. This hearing now stands adjourned.

[Whereupon, at 4:50 p.m., the joint subcommittee hearing was concluded.]

RECENT DEVELOPMENTS IN PROLIFERATION

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
JOINT WITH MILITARY PROCUREMENT SUBCOMMITTEE,
Washington, DC, Thursday, June 20, 1996.

The subcommittees met, pursuant to other business, at 11:40 a.m. in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the Subcommittee on Military Research and Development) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. The Subcommittees on Research and Development and Military Procurement will come to order.

I welcome everyone to the hearing room. And I don't usually read my opening statement, but today I will because of the significance of this hearing, and then I will recognize the chairman of the procurement committee and the ranking members of each.

The Research and Development and Military Procurement Subcommittees meet jointly this morning to receive open testimony from Government witnesses on the administration's response to the threat posed by the proliferation of strategic technology, including missiles and nuclear, chemical, and biological weapons.

The subcommittees just heard from Dr. Gordon Oehler from the intelligence community's Nonproliferation Center on recent developments in proliferation. We apologize for going over our time by approximately 45 minutes, but there was significant member interest in that presentation.

In this regard—I would venture to guess that my colleagues would agree with me on this—there is only one conclusion that one could draw from the presentation we have seen, and that is that the threat posed by the proliferation of strategic technology is real and it is growing.

The administration talks a good game when it comes to proliferation. Secretary Perry has stated—and I quote—we received a wake-up call with Saddam Hussein's use of Scud missiles during Desert Storm and new information on his ambitious nuclear, biological, and chemical weapons programs. The proliferation of these horrific weapons presents a grave and urgent risk to the United States and our citizens, allies, and troops abroad, end quote.

In addition, Secretary Christopher and President Clinton have highlighted the threat posed by proliferation of strategic technology to American interests.

But talk is cheap. When confronted with some admittedly difficult decisions in fighting proliferation, this administration, in my opinion, has time and again failed to make the right choice, and, as a result, its actual record in fighting proliferation can hardly be viewed as a success.

Let's look at the record in some detail. Consider the following specific cases. First, the administration's top policymakers have willfully disregarded clear and convincing evidence of proliferant behavior to avoid having to consider imposing legally mandated sanctions on countries that violate nonproliferation norms. Nowhere is this dangerous pattern clearer than in its handling of the evidence associated with China's transfer of M–11 missiles to Pakistan.

In the M–11 case, the administration officials either pretend that the missiles in Pakistan simply don't exist or they argue that, well, just maybe they haven't become, quote, operational.

In fact, if you read the press reports—I can not comment further, but we just sat through a classified briefing. If you read the press reports, however, the press says the missiles are there. Our intelligence community has affirmed this to members. And for the purposes of U.S. law, it is irrelevant whether the missiles have become operational.

Second, the administration has stubbornly refused to impose sanctions, as required by U.S. law, on known proliferators because doing so, they argue, would, quote, complicate U.S. relations, end quote, with such proliferant countries. The case involving the transfer by China to Pakistan of nuclear ring magnets is a prime example here. Administration officials argue sanctions need not be imposed on China in this case because senior Chinese officials were unaware of the transfer.

Simply put, this contention strains credulity. After all, the Chinese company involved is owned and operated by the Chinese Government. This sale, sadly, repeats a pattern of nuclear weapons cooperation between China and Pakistan that is all too familiar to those who follow this issue.

Another example can be found in the administration's handling of Russia's transfer of intercontinental-range missile components—accelerometers and gyroscopes, to be precise—to Saddam Hussein's regime in Iraq. This event was reported by the newspaper in December of last year. When I visited Moscow the following January, I asked senior officials in the American Embassy whether the United States had issued an official demarche to the Russian Government about this blatant violation of the Missile Technology Control Regime [MTCR]. Not only had we not issued a protest to Mr. Yeltsin's government, United States Embassy officials in Moscow didn't even know about the transfer or acknowledge it to me that had been reported a month earlier in the Washington media.

Now the U.S. Government has finally issued a demarche on this transfer, but administration policymakers contend once again that senior Russian officials did not know of the transfer and therefore we need not impose sanctions.

Policymakers are basing this claim, at least in part, I am told, on the fact that no senior Russian official has admitted knowing of

the transfer in advance. In other words, we are simply taking their word on it.

This transfer occurred last year. The press reported it in December of last year. I asked the administration in January in Moscow. I wrote a letter to President Clinton at the end of January. On April 3, I got President Clinton's response, which I will submit for the record.

[The information referred to was submitted for the record:]

THE WHITE HOUSE

WASHINGTON

April 3, 1996

Dear Representative Weldon:

Thank you for your letter regarding the recent interdiction of Russian missile guidance components destined for Iraq.

Gaining Russian restraint on missile sales is a major objective of this Administration. As you know, in September 1993 we concluded a Memorandum of Understanding with Russia on the control of missile equipment and technology. We also successfully worked with Russia to meet the requirements for Russian membership in the 28-nation Missile Technology Control Regime.

I agree with you that for our nonproliferation agreements to have meaning, they must be fully enforced. For this reason, we have made clear to the Russian Government our deep concern about the shipment of missile guidance components interdicted in Jordon on its way to Iraq. We fully expect Russian authorities to investigate this case and provide us the details of their investigation as well as take steps to preclude similar incidents in the future.

As this case points out, Russia needs to continue to strengthen its new export control system. That is why, with the support of Congress, we are providing export control assistance to the Russian Government. I believe that our continued engagement with Russia on export control issues is the key to long-term improvement on their part.

I appreciate hearing your views on this important issue.

Sincerely,

Bill Clinton

The Honorable Curt Weldon
House of Representatives
Washington, D.C. 20515

Mr. WELDON. I would ask our witnesses today to respond to the statement by President Clinton to me—"We fully expect Russian authorities to investigate this case and provide us the details of their investigation as well as take steps to preclude similar incidents in the future."

I want to know when we can expect the details of that investigation. Are they available today?

Which leads to the third major problem with this administration's record in fighting proliferation; namely, it has aggressively pushed to lower the standards for membership in the various multilateral nonproliferation regimes. Henry Sokolski of the Nonproliferation Policy Education Center has likened this approach to asking known criminals to join the local Neighborhood Watch program.

For example, despite Russia's inability or refusal to control the export of dangerous technologies to rogue regimes, the administration lobbied hard to include Russia in the Missile Technology Control Regime. Perhaps this is because United States law prohibits the imposition of sanctions against regime member states.

To become a member of the Missile Test Control Regime [MTCR], the President certified that Russia has in place effective export controls. Now you can't have it both ways. You can't argue that Russian leaders don't know about the hemorrhaging of technology out of Russia and, therefore, can't be held accountable and at the same time argue that they have effective export controls and mechanisms in place. But that is precisely the type of legal and diplomatic gymnastics this administration has adopted in order to minimize the import of proliferant behavior by Russia and others.

Even more incredible, however, is the recent revelation that the administration would like to bring China and even North Korea, perhaps the two greatest proliferators in modern time, into the club. This is simply mind boggling, given China's continuing missile cooperation with Iran and North Korea's missile cooperation with terrorist regimes in the Middle East, not to mention the fact that Pyongyang has ongoing a crash program to deploy International Ballistic Missiles [ICBM's] that could destroy American cities. But it is, I guess, at least consistent with the previous pattern.

After all, how could one argue against making these countries MTCR members if one has already made Russia and Brazil members and Ukraine an adherent to the regime?

The fourth and final criticism I would levy against this administration's record in fighting proliferation is its practice of subsidizing known proliferators. Today's Washington Post carries a story that notes that the administration is proposing to use the Export-Import Bank to guarantee a $137 million sale of advanced nuclear equipment needed to complete a nuclear reactor being built by the China Nuclear Energy Industry Corporation.

According to the Post story, this firm—and I quote—attracted attention when a lengthy United States intelligence investigation concluded this spring that some of the firm's officials had knowingly approved the sale of ring magnets to Pakistan for use in a facility to enrich uranium for Pakistani nuclear arms.

Likewise, in the case of missiles, the United States Commerce and State Departments have continued to approve transfers of United States-made communications satellites to the same firms in China most responsible for missile proliferation to Pakistan and Iran. What are these satellites launched on? The same booster China uses as an ICBM. Here the United States is affording a double subsidy to China's strategic modernization. It not only is giving money to help pay for strategic rocket modernization, missiles that can be used to target American cities, it is helping China learn how to make these rockets more reliable and sophisticated.

In sum, I think the record is clear. I am certain our witnesses from the administration have plenty to say in response to my assertions, and I welcome the dialogue, and I acknowledge on the record to members that I will be providing two documents for members. One is a briefing that we will have later on entitled "The Changing Nature of International Arms Market," produced by the Center for Defense Analysis. We will have a briefing on that. And the second is the report done by a proliferation study team several years ago, "Emerging Ballistic Missile Threat to the United States."

And I would encourage members to read and understand what is happening in the world today, because these issues are the foundation on which we have to decide how to best protect the American people, our troops, and our allies. It is a very grave question that gets at the heart of what our responsibility is as members of this committee and these two important subcommittees.

With that opening statement, I will turn to my chairman of the Military Procurement Subcommittee, Mr. Hunter.

[The prepared statement of Mr. Weldon follows:]

OPENING STATEMENT OF REP. CURT WELDON (R-PA)
HEARING ON THE CLINTON ADMINISTRATION'S RESPONSE
TO THE THREAT POSED BY PROLIFERATION
JUNE 20, 1996

The Research and Development and Military Procurement Subcommittees meet jointly this morning to receive open testimony from government witnesses on the Clinton Administration's response to the threat posed by the proliferation of strategic technology, including missiles and nuclear, chemical, and biological weapons. The Subcommittees just heard from Dr. Gordon Oehler from Intelligence Community's Non-Proliferation Center on recent developments in proliferation.

In this regard, and I would venture to guess that my colleagues would agree with me on this, there is only one conclusion one can draw from the presentation we've just seen -- and that is, the threat posed by the proliferation of strategic technology is real and growing.

The Administration talks a good game when it comes to proliferation. Secretary Perry, for example, has stated, (quote) "We received a wake-up call with Saddam Hussein's use of Scud missiles during Operation Desert Storm and new information on his ambitious nuclear, biological, and chemical weapons programs. *The proliferation of these horrific weapons presents a grave and urgent risk to the United States and our citizens, allies, and troops abroad."* (end quote) In addition, Secretary Christopher and President Clinton have highlighted the threat posed by proliferation of strategic technology to American interests.

But talk is cheap. When confronted with some admittedly difficult decisions in fighting proliferation, this Administration has time and again failed to make the right choice. And, as a result, its actual record in fighting proliferation can hardly be viewed as a success.

Let's look at that record in some detail. Consider the following specific cases:

-- First, the Administration's top policymakers have willfully disregarded clear and convincing evidence of proliferant behavior to avoid having to consider imposing legally-mandated sanctions on countries that violate nonproliferation norms. Nowhere is this dangerous pattern clearer than in its handling of the evidence associated with China's transfer of M-11 missiles to Pakistan.

In the M-11 case, Administration officials either pretend that the missiles in Pakistan simply don't exist, or they argue that, well, just maybe, they haven't become "operational." In fact, press reports suggest the missiles are there -- and, for the purposes of U.S. law it is irrelevant whether the missiles have become "operational."

-- Second, the Adminstration has stubbornly refused to impose sanctions, as required by U.S. law, on known proliferators because doing so, they argue, would "complicate U.S. relations" with such proliferant countries. The case involving the transfer by China to Pakistan of nuclear "ring magnets" is a prime example here. Administration officials argue sanctions need not be imposed on China in this case because senior Chinese officials were unaware of the transfer. Simply put, this contention strains credulity. After all, the Chinese company involved is owned and operated by the Chinese government. This sale sadly repeats a pattern of nuclear weapons cooperation between China and Pakistan that is all too familiar to those who follow this issue.

Another example can be found in the Administration's handling of Russia's transfer of intercontinental-range missile components -- accelerometers and gyroscopes to be precise -- to Saddam Hussein's regime in Iraq. This event was reported in the newspaper in December of last year. When I visited Moscow the following January I asked senior officials in the American Embassy whether the U.S. had issued a "demarche" to the Russian Government about this blatant violation of the Missile Technology Control Regime (MTCR). Not only had we not issued a protest to Mr. Yeltsin's government, U.S. Embassy officials in Moscow didn't even know about the transfer that had been reported a month earlier in the Washington media!

Now, the U.S. Government has finally issued a demarche on this transfer, but Administration policymakers contend, once again, that senior Russian officials did not know of the transfer and therefore we need not impose sanctions. Policymakers are basing this claim, at least in part, I am told, on the fact that no senior Russian official has admitted knowing of the transfer in advance. In other words, we're simply taking their word on it.

-- Which leads to the third major problem with this Administration's record in fighting proliferation -- namely, it has aggressively pushed to lower the standards for membership in the various multilateral nonproliferation regimes. Henry Sokolski of the Nonproliferation Policy Education Center has likened this approach to asking known criminals to join the local "Neighborhood Watch" program.

For example, despite Russia's inability or refusal to control the export of dangerous technologies to rogue regimes, the Administration lobbied hard to include Russia in the Missile Technology Control Regime. Perhaps this is because U.S. law prohibits the imposition of sanctions against regime-member states.

To become a member of the MTCR, the President certified that Russia has in place "effective export controls". Now, you can't have it both ways -- you can't argue that Russian leaders don't know about the hemorrhaging of technology out of Russia -- and therefore, can't be held accountable -- and at the same time argue that they have effective export control laws and mechanisms in place. But that is precisely the type of legal and diplomatic gymnastics this Administration has adopted in order to minimize the import of proliferant behavior by Russia and others.

Even more incredible, however, is the recent revelation that the Administration would like to bring China and even North Korea -- perhaps the two greatest proliferators of modern times -- into the club. This is simply mind-boggling given China's continuing missile cooperation with Iran and North Korea's missile cooperation with terrorist regimes in the Middle East -- not to mention the fact that Pyongyang has on-going a "crash" program to deploy ICBMs that can destroy American cities. But it is, I guess, at least consistent with the previous pattern -- after all, how could one argue against making these countries MTCR members if one has

already made Russia and Brazil members and Ukraine an "adherent" to the regime.

-- The Fourth and final criticism I would levy against this Administration's record in fighting proliferation is its practice of subsidizing known proliferators. Today's Washington Post carries a story that notes that the Administration is proposing to use the Export-Import Bank to guarantee a $137 million sale of advanced nuclear equipment needed to complete a nuclear reactor being built by the China Nuclear Energy Industry Corporation. According to the Post, this firm (quote) "attracted attention when a lengthy U.S intelligence investigation concluded this spring that some of the firm's officials had knowingly approved the sale of ring magnets to Pakistan for use in a facility to enrich uranium for Pakistani nuclear arms." (end quote)

Likewise, in the case of missiles, the U.S. Commerce and State Departments have continued to approve transfers of U.S.-made communications satellites to the same firms in China most responsible for missile proliferation to Pakistan and Iran. What are these satellites launched on? The same booster China uses as an ICBM. Here, the United States is affording a double subsidy to China's strategic modernization; it not only is giving money to help pay for strategic rocket modernization -- missiles that can be used to target American cities -- it is helping China learn how to make these rockets more reliable and sophisticated.

In sum, I think the record is clear. I'm certain our witnesses Administration witnesses will have plenty to say in response to these assertions -- and I welcome such a dialogue.

STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. Thank you, Mr. Chairman; and thank you for putting this hearing together.

You know, this morning a member of my staff did a random search of the Internet for information on nuclear weapons, and just prior to this hearing he handed me copies of the documents that he downloaded from a site in Finland describing the nature of the fission and fusion processes, the basic principles of fission weapon design and assembly techniques for achieving supercriticality.

While I am not a physicist and I can't judge the level of sophistication of all this data, I nevertheless can't help but think that this information might be useful to someone somewhere who might want to build a bomb and who might not otherwise have access to it.

I think this example only highlights part of the difficulties we face in controlling the spread of weapons of mass destruction and their delivery systems, for the past several years have witnessed a wholesale effort to dismantle the export control system that has been relatively successful in preventing the flow of sensitive weapons technologies abroad. The demise of COCOM has led to the creation of the Wassenaar Arrangement which allows the exports of sensitive technologies based on national discretion.

While it is true that today's world no longer resembles that of the cold war, when our primary objective was to keep dangerous weapons and technologies out of the hands of the Soviet Union and its Warsaw Pact allies, the administration's relaxation of export restrictions is absolutely mind boggling to me.

I can recall the debates we had on COCOM and the need to keep Western solidarity in the face of the Soviet Union during the cold war, and I it is think ironic that now that we have, in the words of Jim Woolsey, a jungle full of snakes, terrorist nations that would use—Mr. Qadhafi, for example, said if, "I had missiles, I would launch them at New York." In this world in which we now face a world that has a number of terrorist nations, ironically, they face a standard, a Western standard that is called national discretion rather than the Western solidarity that was manifest in COCOM during the cold war period.

I find particularly troubling that in some cases the administration has decided to decontrol the export of items based upon a presumption that these technologies will be widely available at some point in the future. And, of course, that is a speculation that will justify the sale of practically any item. You can always find something that is going to tell you that at some point you are going to find the Germans or the French or somebody selling some item, and if you speculate enough about the technology, you can justify the transfer of just about any type of militarily critical item.

This preemptive decontrol creates a self-fulfilling prophecy that I think is going to make it harder to stem proliferation.

A simple review of this administration's actions over the past several years might lead an independent observer to the conclusion that the administration places business interests above national security interests, and I find it unusual, as I think one of my col-

leagues did this morning, that we have so many communications now coming from the Department of Defense urging Most Favored Nation [MFN] with China.

But for example, in this area, the administration continues to consider allowing powerful United States supercomputers to be shipped to Russian nuclear weapons laboratories, including Arzamas-16, where much of the Soviet Union nuclear weapons were manufactured. Such an action flies in the face of common sense. Consequently, I have asked the General Accounting Office to review the implications of this plan.

Moreover, the administration has decided to remove jet engine hot section technology and commercial communications satellites from the list of items controlled under the State Department's munitions list and to transfer jurisdiction of these items to the Commerce Department's commodity control list, thereby relaxing restrictions on their exports.

According to the General Accounting Office [GAO], the Commerce Department in 1994 licensed for export Stealth coding that could have been used to defeat our Patriot antimissile system. Fortunately, after this case was publicized, that export license was suspended before the commodity could be shipped. We might not be so lucky the next time.

Other examples come to mind. For instance, sensitive United States machine tools and production technologies have been transferred to China. Advanced United States communications technology with military applications has been transferred to a joint venture owned in part by the Chinese People's Liberation Army. In addition, the administration allowed the sale of engines to China that could be used in long-range cruise missiles that could target American forces in that region of the world. In fact, the transfer to China of sensitive production technology for these engines was halted only after Mr. Weldon and I raised this issue. And I hope our witnesses today will confirm that the administration has no plans to allow any such transfers to proceed.

Mr. TAYLOR. Mr. Chairman, will the gentleman yield?

Mr. HUNTER. Happy to.

Mr. TAYLOR. Mr. Abercrombie and I have a joint request, as members of your Procurement Subcommittee, that if you would like to come up with a statement on behalf of the Procurement Subcommittee against MFN, we would gladly welcome it. We would gladly help you along those lines.

Mr. HUNTER. I thank the gentleman, and he can be assured that we will be standing shoulder to shoulder fighting MFN here as soon as the administration moves it out in the next several weeks.

Just to conclude—and I think the gentleman brought up a good point—the candidate Clinton railed about the export of what he considered to be militarily critical technology to our adversaries, some of which technology was used to kill Americans in Desert Storm.

It seems like every time we have a conflict, when we have states like Iraq killing Americans on a battlefield and we have all the analysis that follows it and shows that some of that technology was Western technology sold by commerce departments in Western capitals around the world, there is a grand program and momentum

and a big press outburst, there is a grand effort to stop the sale of the militarily critical technologies to people that will be facing our children on the battlefield at some point in the future.

And yet, after the administration gets in place and proposes to start limiting these exports, somewhere down the line the Commerce Department, the people that would make profit, the salesmen for the country in government—and sales is what Commerce is interested in—seek to predominate and to dominate the process, and we end up with what I would consider to be a hemorrhage of militarily critical technology to people that will at some point use it against us.

I hope you will address today, along with the specifics of your points that you want to make on specific issues, the evolution of the Clinton administration from a candidate who said he absolutely would not go along with any type of transfer of militarily critical technology to a President who, in my estimation, has now a very liberal policy on this issue and one that will not accrue to our benefit in conflicts in the future.

Thank you, Mr. Chairman, for holding the hearings.

[The prepared statement of Mr. Hunter follows:]

STATEMENT BY REP. DUNCAN HUNTER
20 June 1996

I believe today's hearing is one of the most important hearings we will have this year. The proliferation of weapons of mass destruction and the missiles that can carry them is clearly among the most significant challenges facing the United States in the post-Cold War world.

Even the Clinton Administration has recognized this fact. In November 1994, the President declared a "national emergency" because of "the unusual and extraordinary threat to the national security, foreign policy, and economy of the United States posed by the proliferation of nuclear, biological, and chemical weapons ('weapons of mass destruction') and the means of delivering such weapons." Last November, the President extended this national emergency, which remains in effect today.

Given this fact, I find it remarkable that the policies pursued by this Administration are doing more to foster dangerous proliferation than to stop it. What is lacking here is leadership -- the leadership role

of the United States is critical to our efforts to stem the proliferation of dangerous weapons and technologies to potential adversaries.

The dangers posed by proliferation are especially pronounced in a world where sensitive information on weapons theory and design is more readily accessible to anyone with the capability to cruise the "information superhighway" of the Internet. This morning a member of my staff did a random search of the Internet for information on nuclear weapons. Just prior to this hearing, he handed me copies of the documents he downloaded from a site in Finland describing the nature of the fission and fusion processes, the basic principles of fission weapon design, and assembly techniques for achieving supercriticality. Now while I am not a physicist, and cannot judge the level of sophistication of all of this data, I nevertheless cannot help but think that this information might be useful to someone, somewhere, who may want to build a bomb and who may not otherwise have access to it.

This example only highlights part of the difficulties we face in controlling the spread of weapons of mass destruction and their delivery systems. The past several years have witnessed a wholesale effort to dismantle the export control system that has been relatively

successful in preventing the flow of sensitive weapons technologies abroad. The demise of COCOM has led to the creation of the "Wassenaar Arrangement," which allows the exports of sensitive technologies based on "national discretion." While it is true that today's world no longer resembles that of the Cold War, when our primary objective was to keep dangerous weapons and technologies out of the hands of the Soviet Union and its Warsaw Pact allies, the Administration's relaxation of export restrictions is absolutely mind-boggling.

As President Clinton's first Director of Central Intelligence, Jim Woolsey, has said, "Yes, we have slain a large dragon, but we live now in a jungle filled with a bewildering variety of poisonous snakes." I believe this Administration's policies are making the venom produced by those snakes more lethal.

I find it particularly troubling that in some cases, the Administration has decided to decontrol the export of items based upon a presumption that these technologies will be widely available at some point in the future -- not that there <u>are</u> available in other countries today, mind you, but that they <u>will be</u> available several years from now.

This was a key justification for the decision to reduce or eliminate controls on supercomputer exports, which can be used to facilitate the development of nuclear weapons and missiles by dedicated proliferators. This "preemptive" decontrol creates a self-fulfilling prophesy that will make it harder for us to stem proliferation.

A simple review of this Administration's actions over the past several years might lead an independent observer to the conclusion that the Administration places U.S. business interests above national security interests.

For example, the Administration continues to consider allowing powerful U.S. supercomputers to be shipped to Russian nuclear weapons laboratories, including Arzamas-16, where much of the Soviet Union nuclear weapons were manufactured. Such an action flies in the face of common sense. Consequently, I have asked the General Accounting Office to review the implications of such an export.

Moreover, the Administration has decided to remove jet engine "hot section" technology and commercial communications satellites from the list of items controlled under the State Department's Munitions List and to transfer jurisdiction of these items to the

Commerce Department's Commodity Control List, thereby relaxing restrictions on their export. According to the GAO, the Commerce Department in 1994 licensed for export "stealth coating" that could have been used to defeat our Patriot anti-missile system. Fortunately, after this case was publicized, that export license was suspended before the commodity could be shipped. We may not be so lucky the next time around.

Other examples come to mind. For instance, sensitive U.S. machine tools and production technologies have been transferred to China. Advanced U.S. communications technology with military applications has been transferred to a joint venture owned in part by the Chinese People's Liberation Army. In addition, this Administration allowed the sale of engines to China that could be used in long-range cruise missiles that could target our forces in that region of the world. In fact, the transfer to China of sensitive production technology for these engines was halted only after Mr. Weldon and I raised this issue. I hope our witnesses today will confirm that the Administration has no plans to allow any such transfers to proceed.

These items are chilling examples of the shortcoming of nonproliferation regimes in controlling the proliferation of weapons and technologies that can threaten U.S. interests. It also provides ample justification for pursuing a robust ballistic missile defense program -- including the development and deployment of national missile defenses.

I hope our witnesses today will provide us with a sense of greater confidence that the decisions that have been made in recent years will not contribute to the proliferation threat we will face several years hence. I look forward to their testimony.

Mr. ABERCROMBIE. Mr. Chairman.

Mr. WELDON. Thank you.

Mr. Abercrombie.

Mr. ABERCROMBIE. Mr. Chairman, I know that Mr. Hunter didn't mean anything pejorative when he used the word "liberal" in terms of interpretation as to what the policy might be.

Mr. HUNTER. I meant spend freely, sell freely.

Mr. ABERCROMBIE. Because he knows that I am as adamant as he is, and I am a liberal. I am an extreme liberal. I am a progressive liberal. I am proud to be a liberal. And he knows that I have been as adamant as he in opposing these exports, no matter what the administration in power happened to be, and that this is not just in this administration but, unfortunately, has been—and I think I am quoting correctly in part from what you said—business interests are seen above national security interests.

Those business interests I don't think can be classified politically as liberals. I don't think many of them can be classified in the Democratic Party or this administration.

My point, Mr. Chairman, simply is that when we put this forward, I don't think this is so much a partisan issue as it is a question of determination of the national security interests that knows no party lines.

Mr. WELDON. I thank the gentleman.

Mr. HUNTER. If I could just make a fast response, thank you to my friend. When I used the term "liberal," I mean tending to spend freely. And while the gentleman classifies himself as a political liberal, with respect to selling supercomputers to people who use it to make bombs, he is absolutely conservative on that issue in the sense that he doesn't want to make any sales and I don't want to make any sales.

And sure, administrations past have been too supportive of the transfer of military technology. I have had amendments on the House floor, and a number of other members here have supported them.

The point I am making is that this administration had the right position going in. That was, we were going to cut down on these sales. And that isn't the position that we see now. I will be the first person to congratulate the Clinton administration when and if they tighten up.

Mr. WELDON. I would yield briefly to the gentleman from Virginia, Mr. Sisisky, before I recognize the distinguished ranking member.

Mr. SISISKY. I just want to follow up. My friend, the liberal, I am no liberal, and I think the members of this committee know that.

I have got to say something that really bothers me from the contents of both approaches. I pride myself on being in a committee that has no political overtones in it. National defense, national security should not have political overtones.

You know that I will criticize the Department of Defense [DOD] in 2 seconds flat, I did it today, I will do it tomorrow, if I think that they are wrong. But that is the political implications of this thing. We are not running a presidential campaign in national security right now, and I would hope that we would keep our rhetoric as to the DOD or as to the Department of State rather than trying

to run an election. I plead with you keep as much politics out as you can.

Mr. WELDON. Will the gentleman yield?

I agree. When we had a Republican administration, I was as critical as any Member of my party and, in some cases, was ostracized by not the current leadership but the previous leadership on my side of the aisle because I was so frequently critical of a Republican administration. The comments that I made were reflective of the policy from the top and not meant personally to any parties, but rather a policy.

Mr. HUNTER. Will the gentleman yield; since the gentleman is obviously referring to my remarks?

Mr. SISISKY. I was referring to Mr. Weldon's.

Mr. HUNTER. Let me answer for myself as the world's greatest expert on my opinion.

This gentleman offered every amendment possible and supported every amendment possible for the last 10 years, amendments which often were strongly opposed by Republican Presidents and Secretaries of State and Secretaries of Defense, and we did it with no apology because it was wrong for the country.

We happen to have a President named Bill Clinton, where I applauded candidate Clinton's position that you have to cut back on the export of militarily critical technologies. But I have been tough on Republican administrations, I have fought them hard, I will do exactly the same with this President. So in the best sense of the term, this is a bipartisan issue. And the Commander in Chief happens to be the guy calling the shots here, because when there is a conflict between the DOD, which may say we don't want to sell this to the Russians, to the Iranians, or to the Chinese, or to the Koreans, and there is a Department of Commerce which says, come on now, you are losing sales for the United States, it is important, in my estimation, that the President who makes a decision, who casts the tie-breaker, has to come down in the area of national security.

In my estimation, those decisions have been coming down on the side of making the sale with the Commerce Department over the last several years. I think that is bad.

So I just assure my friend, that is not a partisan position, because I took exactly the same position with the Reagan and Bush administrations.

Mr. WELDON. Mr. Spratt.

Mr. SPRATT. The two Chairman have raised serious questions and serious allegations to which I hope our witnesses will have serious and substantive answers. There are reasonable lines that have to be drawn in this area.

A country with a merchandise trade deficit of over $150 billion does not want to preclude the sale of all high-technology exports. For example, Westinghouse, I understand it is proposing to sell turbines or the conversion of heat into electricity.

This is not an article which completes a nuclear reactor. The nuclear reactor is a freestanding reactor by itself. The turbine is part of the powerhouse.

I think there is a reasonable line to be drawn. If you are going to exclude that kind of sale, we will have more trade deficits in the

future. With that in mind, I hope that there are other answers that will clarify this.

I don't think this administration is about the process of trying to give away secrets or sensitive technology that is going to come back and haunt us. We have just been through a briefing which reminds us that this whole area requires extra earnest application by the administration, as it did with all the administrations. I look forward to your answers to the questions that have been raised.

Mr. WELDON. Thank you, Mr. Spratt.

Mr. Sisisky as the ranking attending member of the Procurement Subcommittee; would you like to make an opening statement?

Mr. SISISKY. No.

Mr. WELDON. The chairman of the full committee and the ranking member sat through the entire classified portion of the briefing today. Mr. Dellums will be back.

I want to acknowledge and thank both gentlemen for sitting through that entire session, very significant that our leadership is taking such a personal interest in these issues.

We are very pleased and happy to have from the Department of Defense, Dr. Michael Wallerstein, Deputy Assistant Secretary for Counterproliferation Policy, and representing the Department of State. Dr. Robert Einhorn, who I have had the pleasure of interacting with on a number of occasions.

Dr. Wallerstein, we will let you go first.

STATEMENT OF MITCHELL B. WALLERSTEIN, PH.D., DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR COUNTERPROLIFERATION POLICY, U.S. DEPARTMENT OF DEFENSE; AND ROBERT EINHORN, PH.D., DEPUTY ASSISTANT SECRETARY OF STATE FOR NONPROLIFERATION, BUREAU OF POLITICAL-MILITARY AFFAIRS, DEPARTMENT OF STATE

Mr. WALLERSTEIN. Good morning, Mr. Chairman.

I am Dr. Mitchell Wallerstein, the Deputy Assistant Secretary of Defense for Counterproliferation Policy. I appreciate this invitation to appear before the joint meetings of the Subcommittees on Military Procurement and Research and Development of the House National Security Committee, to discuss steps that the DOD has taken and is taking to prevent the proliferation of nuclear, biological and chemical weapons, often referred to as NBC weapons, and their delivery systems, principally ballistic and cruise missiles, and to be prepared to deal with the consequences of such proliferation in those cases where it has already occurred.

I have a prepared written statement which I ask be entered into the formal record of this hearing.

I note that our recent report, "Proliferation Threat and Response" has just been distributed to you.

This is the blue report. I hope that the other Members of both the subcommittees and the full committee will also be receiving it and that you would commend it to their attention along with the other documents that you noted earlier.

U.S. conventional forces are the best in the world and we believe that they are capable of deterring and, if necessary, defeating any other armed force which they might confront. But the post-cold war world adds a potential wild card into the equation; nuclear, biologi-

cal and chemical weapons developed by rogue nations as a way to even the odds in future conflicts, to deter the United States' involvement. Threatened or actual use of NBC might be seen by a proliferant state as perhaps the only means to neutralize the vastly superior U.S. conventional force projection capabilities.

I would like to begin by mentioning some of our successes in adapting our capabilities to deal with these NBC threats. First, we are attacking the problem at its source. For proliferants, the end of the cold war and the breakup of the former Soviet Union has increased the potential for access to NBC weapons technology, material and expertise, although the Newly Independent States are taking steps to maintain and, in many cases, expand their export controls and nuclear safeguards.

Maintaining control over the accountability of these capabilities and materials presents a daunting challenge. We are working closely with the governments of Belarus, Kazakstan, Russia and Ukraine through the Cooperative Threat Reduction program to reduce proliferation threats from the region.

The CTR program, as it is called, has helped make possible the now-completed withdrawal of all nuclear weapons from Kazakstan and Ukraine, and we expect the remaining nuclear weapons to be withdrawn from Belarus before the end of the year. Going from four nuclear states to one reduces the problem of trying to control proliferation.

The CTR program will continue to address issues related to weapons dismantlement and security on the territory of the former Soviet Union, both by continuing existing projects and by developing new ones, adapting to new and changing requirements.

We are also working with our allies in Europe. NATO has moved counterproliferation to the top of its post-cold war agenda. Ensuring that the alliance is prepared to meet the threats posed by NBC proliferation is now seen as one of the fundamental missions of the alliance and as a key aspect of NATO's adaptation to the new security environment.

Defense ministers just this month have approved an accelerated plan of action recommended by a group known as the Senior Defense Group on Proliferation to improve Allied military capabilities to counter proliferation risks. This will be reflected in NATO's defense planning process which will be modified to take account of the growing proliferation problem on NATO's periphery and to early deployment of key capabilities for addressing the unique military challenges posed by NBC threats.

This year we will increase our efforts to stem nuclear smuggling and nuclear terrorism. Under a mandate from Congress, we are working with the FBI to establish an anti-trafficking program to train law enforcement authorities in the Baltics and Eastern Europe and in the former Soviet Union.

When fully implemented, the North Korean framework agreement will exemplify a successful effort to roll back a program that was well underway and was intended to produce nuclear weapons. The framework agreement already has succeeded in stopping this program dead in its tracks, and we are monitoring this program carefully to ensure that the North Koreans live up to their obligations.

Our success in achieving the indefinite extension of the Nonproliferation Treaty in 1995, without conditions, has established a permanent global norm against the spread of nuclear weapons. We need now to complement this achievement in the nuclear area with a parallel success regarding early U.S. ratification of the Chemical Weapons Convention which is now before the Senate.

Technological developments also have played a key role in raising the proliferation threat to the top of our agenda. As was demonstrated by the case of North Korea, no matter how backward a country may be economically, it can still have or develop the capability to build nuclear reactors and produce plutonium.

In addition, some technology and products that once were controlled are now readily available on world markets. The pace of technological change and technological growth worldwide has complicated the problem of controlling the key proliferation-related technologies.

Indeed, export controls are another key mechanism through which the DOD plays a large role in preventing proliferation of NBC weapons and delivery systems. Over the last few years we have undertaken a very substantial reform of our export control system.

I wish to emphasize three major components of the administration's efforts: First, the administration is focusing its export control efforts on technologies that are critical to developing and deploying military capabilities. By focusing our efforts on items that are truly controllable, we can make the acquisition of weapons of mass destruction and their means of delivery, as well as conventional arms and associated dual-use technologies, much more difficult.

Second, we are improving the efficiency and transparency of the export control process. As you may be aware, a recent Executive Order requires appropriate interagency review of all categories of licenses. This gives the DOD a stronger role in licensing decisions than it previously had and will enable us to bring our technical expertise to bear more effectively and will respond to the kinds of concerns that many of the Members have already articulated here this morning, that the Department in the past has sometimes lacked the opportunity to express its views on certain sensitive exports.

Let me be clear. We will now as a result of this Executive order, review all licenses that are requested. We have the opportunity now to see all licenses submitted.

Third, we are strengthening multilateral export control regimes dedicated to stopping the spread of NBC weapons and their delivery systems and advanced conventional weapons. We are moving to complete the Wassenaar Arrangement on Export Controls. And through U.S. leadership we have brought together 31 countries to establish this new arrangement.

Admittedly, it is on a different basis than the old COCOM, but the circumstances have changed to the point where we have had to address the realities of what could effectively be controlled in today's environment. This regime will, however, deal with the threats to security through restraints in trade to pariah countries and to prevent further dangerous accumulations of arms.

I might note that this is the first time that a regime has been established to deal specifically with the threats posed by proliferant states.

The administration is committed to strong nonproliferation policies. We have sanctions currently in force against Iran, Iraq and Libya. We have been providing substantial support to UNSCOM in Iraq, providing equipment and expertise to monitor the chemical weapons and missile manufacturing facilities in Iraq.

Finally, we are working to strengthen the missile technology control regime to help limit the spread of this technology.

So I hope you will agree that we are doing a great deal to prevent proliferation from occurring from the first place, but realistically we cannot expect to be successful under all circumstances. In such cases, we want to deter NBC use and to defend our forces against the effects of these weapons if they are used.

In deterring the threat, we depend on both strong conventional military force and a smaller but still powerful nuclear force. Secretary Perry stated earlier this year that United States response to the use of nuclear weapons against the U.S. forces would be "devastating and overwhelming." We have, in fact, a broad spectrum of force options available with which to respond to WMD use against us.

There is another aspect of deterrence also that is often overlooked. If our forces are equipped and prepared to deal with the effects of chemical or biological weapon use against us, then that defensive capability takes on a deterrent effect of its own. Thus, effective active and passive defense take away the perceived advantages that an adversary might otherwise believe it could gain by employing the use of such weapons.

Two years ago we initiated the DOD Counterproliferation Initiative which reoriented U.S. defense strategy from an east-west cold war orientation to a focus on Major Regional Contingencies [MRCs]. The purpose of this counterproliferation initiative is to ensure that we will be able to prevail in future MRCs, recognizing that our nuclear deterrent will always be a factor, but should not be the only response.

DOD's NBC capabilities will be made available also for responding to terrorist incidents. Overseas the DOD would follow the lead of the State Department and domestically we would follow the lead of the Department of Justice, normally through the FBI, and the Federal Emergency Management Agency, FEMA. The procedures for accomplishing these missions are currently being worked out, including both a DOD biological/chemical emergency response capability and a much broader counterterrorism capability.

For domestic NBC emergencies, equipment, trained personnel, and technical experts will be available to civil law enforcement and emergency response authorities for responding to any domestic terrorist incident.

For crisis management, the Special Operations Command, SOCOM, will have a special missions unit to help resolve terrorist incidents. These units are trained in handling biological and chemical agents and effects. They have state-of-the-art protective gear and they can render safe and recover biological weapons and chemical weapons.

These SOCOM units are supported by a specialized chemical/biological response unit consisting of a technical escort unit which is trained to search, sample, recover and transport agents and on-call teams from the Army and Navy laboratories which have the expert knowledge to apply at the scene.

For consequence management, the DOD would provide capabilities of NBC defense units and military medical care capabilities and supplies. A number of initiatives now exist to upgrade these capabilities as well as strengthen their links to civilian agencies and foreign governments.

We are working to ensure that counterproliferation pervades everything we do in the DOD, including the development of new doctrine and realistic training in NBC conditions. To integrate the counterproliferation concept into all DOD agencies, we have recently established a Counterproliferation Council to coordinate DOD-wide efforts. This council is chaired by Deputy Secretary of Defense White and will have among its members the Vice Chairman of the Joint Chiefs of Staff as well as senior officials from the services, OSD and the Joint Staff.

In conclusion, I have described to you a few of our initiatives in the area of counterproliferation. We have many activities underway, but we know that we have more to do. Proliferation presents a daunting challenge which will require perseverance, patience and imagination.

While we continue to have major successes through our nonproliferation diplomacy, we recognize that in the current global security environment, it will not be possible to prevent proliferation all the time and in all places. When proliferation occurs and U.S. interests and commitments are involved, it is the responsibility of the DOD to make certain that we are able to prevail on the battlefield, even against an opponent who possesses nuclear, chemical or biological weapons.

This concludes my oral statement. Deputy Assistant Secretary Einhorn and I will be happy to answer your questions.

Mr. WELDON. Thank you for your statement. Please accept my sincere apology for misstating your first name. I am sorry.

[The prepared statement of Mr. Wallerstein follows:]

Testimony of

Dr. Mitchel B. Wallerstein

Deputy Assistant Secretary of Defense for Counterproliferation Policy

before the

Subcommittees on Military Procurement and Research and Development
of the Committee on National Security
U.S. House of Representatives

20 June 1996

Introduction

Good morning, Mr. Chairman. I am Dr. Mitchel Wallerstein, Deputy Assistant Secretary of Defense for Counterproliferation Policy. Thank you for the invitation to appear before this joint meeting of the Subcommittees on Military Procurement and Research and Development of the House National Security Committee to discuss the steps that the Department of Defense has taken--and is taking--to prevent the proliferation of nuclear, biological, and chemical (NBC) weapons and their delivery systems (principally, ballistic and cruise missiles) and to be prepared to deal with the consequences of such proliferation in those cases where it has already occurred.

With the end of the Cold War, the threat of nuclear holocaust has been reduced dramatically, but we are confronted today with the threat of NBC weapons and missile proliferation to countries in many parts of the world. Recognition of this growing security challenge, which was accelerated by review of the lessons learned in Desert Storm, motivated the development in 1993 of a counterproliferation program, which is among the highest priorities of the Defense Department.

U.S. conventional forces are the best in the world, and we believe that they are capable of deterring--and, if necessary, defeating--any other armed force which the United States might confront. A proliferated world introduces, however, a potential wild card into the equation: acquisition or indigenous development of nuclear, biological, and chemical weapons by rogue nations as a way to try to "even the odds" in future conflicts and thereby to deter U.S. involvement. Threatened or actual use of NBC weapons might be seen by a proliferant state as perhaps the *only* means to neutralize the vastly superior U.S. conventional force projection capabilities. Thus, to maintain our superiority, we must ensure that no country or sub-state actor attempts to test whether these weapons actually can be used as equalizers against our forces, to induce the United States to stay out of--or withdraw from--some future regional conflict.

How do we respond to this problem? Our first response is always to try to prevent proliferation; second, to deter the threat that we cannot prevent; and finally, if necessary, to defend our forces, our interests and our allies and coalition partners against threats.

Recent Successes

There is a tendency to focus on the negatives when discussing the proliferation of NBC weapons and their delivery systems. I would like to begin my testimony by mentioning some of our successes.

First, we are attacking the problem at the source. For proliferants, the end of the Cold War and the breakup of the Soviet Union has increased the potential for access to NBC weapons technology, material, and expertise, although the newly independent states are taking steps to maintain -- and expand -- their export controls and nuclear safeguards. Maintaining control over the accountability of these capabilities and materials presents a daunting challenge. We are working closely with the Governments of Belarus, Kazakstan, Russia, and Ukraine through the Cooperative Threat Reduction (CTR) Program to reduce proliferation threats from the region.

To date, over $1.5 billion has been notified to Congress for the CTR program. We are assisting these countries in over 30 different projects such as improving their export controls and nuclear safeguards, helping dismantle ICBM silos and heavy bombers, and helping eliminate the infrastructure associated with NBC weapons. The CTR program has helped make possible the now completed withdrawal of all nuclear weapons from Kazakstan and Ukraine, and we expect the remaining nuclear weapons to be withdrawn from Belarus before the end of the year. Another major success story, closely related to CTR, was Project Sapphire -- which involved the purchase of highly enriched uranium from Kazakstan and the transportation of that material to the U.S. for safe storage.

Going from four nuclear states to one reduces the problem of trying to control proliferation. The CTR program will continue to address issues related to weapons dismantlement and security on the territory of the former Soviet Union, both by continuing existing projects and by developing new ones, adapting to new and changing requirements.

We are also working with our long-standing Allies in Europe to develop common approaches on counterproliferation. NATO has moved counterproliferation to the top of its post-Cold War agenda. Ensuring that the Alliance is prepared to meet the threats posed by NBC proliferation is now seen as one

the fundamental missions of the Alliance and is a key aspect of NATO's adaptation to the new security environment. NATO Heads of State and Government in January 1994 established a special body, the Senior Defense Group on Proliferation (DGP), to examine the defense implications of NBC proliferation. Defense Ministers just this month approved an accelerated plan of action recommended by the DGP to improve Allied military capabilities to counter proliferation risks. This will be reflected in NATO's defense planning process, which will be modified to take account of the growing proliferation problem on NATO's periphery and to early deployment of key capabilities for addressing the unique military challenges posed by NBC threats.

This year, we will increase our efforts to stem nuclear smuggling and terrorism. Under a mandate from Congress, we are working with the FBI to establish an anti-trafficking program to train law enforcement authorities in the Baltics, Eastern Europe, and Former Soviet Union countries.

When fully implemented, the North Korean Framework Agreement will exemplify a successful effort to roll back a program that was well underway and was intended to produce nuclear weapons. The Framework Agreement already has succeeded in stopping that program dead in its tracks. And we are monitoring the program carefully to insure that the North Koreans live up to their obligations.

Our success in achieving the indefinite extension of the Non-Proliferation Treaty in 1995, without conditions, has established a permanent global norm against the spread of nuclear weapons. We now need to complement this achievement in the nuclear area with a parallel success regarding chemical weapons by ratifying and bringing into force the Chemical Weapons Convention as soon as possible.

Non-Proliferation Policies

Technological developments also have played a key role in raising the proliferation threat to the top of our agenda. As was demonstrated by the case of North Korea, no matter how backward a country may be economically, it can still have (or develop) the capability to build nuclear reactors and produce plutonium. In addition, some technology and products that were once controlled, are now readily available. The pace of technological change and

growth in world trade has therefore complicated our efforts in trying to control proliferation

Export controls are another key mechanism through which DoD plays a large role in preventing proliferation of NBC weapons and delivery systems. Over the last few years we have undertaken a very substantial reform of our export control system. I wish to emphasize three major components of the Administration's efforts. First, the Administration is focusing its export control efforts on chokepoint items and/or technologies that are critical to developing and deploying military capabilities. By focusing our efforts on items that are truly controllable, we can make the acquisition of weapons of mass destruction and their means of delivery as well as conventional arms and associated dual-use technologies much more difficult. Second, we have moved effectively to improve the efficiency and transparency of the export control process. A recently issued Executive Order ensures appropriate interagency review of all categories of licenses. This reform has given DoD a stronger role in licensing decisions than existed previously, thereby enabling us to bring our technical expertise to bear more effectively and responding to Congressional concerns that the Department of Defense has sometimes lacked the opportunity to express its views on certain sensitive exports. Third, we are strengthening the system of multilateral export control regimes dedicated to stopping the spread of weapons of mass destruction, their delivery systems, and advanced conventional weapons.

We are working with our partners to make existing multilateral regimes as effective as possible. We are also moving to complete the establishment of the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies. US leadership has brought together 31 countries to establish the Wassenaar Arrangement, a new international regime to increase transparency and responsibility for the global market in conventional armaments and dual use goods and technologies. This regime aims to deal firmly with threats to security through restraints in trade to the pariah countries and to prevent future accumulations of arms.

The Administration is committed to strong non-proliferation policies. We have sanctions currently in force against Iran, Iraq, and Libya. DoD provides much support to UNSCOM in Iraq. It is our equipment and expertise that was used in the design and monitoring of the chemical weapons and missile manufacturing facilities in Iraq. Finally, we are working to strengthen the

Missile Technology Control Regime to help limit the spread of missile-related technology.

So, I think you will agree that we are doing a *great deal* to prevent proliferation from occurring in the first place. But realistically, we cannot expect to be successful under ALL circumstances. In these cases, we want to deter NBC use and to defend our forces against the effects of these weapons if they are used.

Deterrence

In deterring the threat, we depend both on strong conventional military force and a smaller--but still powerful--nuclear force. Secretary Perry stated earlier this year that the U.S. response to the use of NBC weapons against U.S. forces would be devastating and overwhelming. We have, in fact, a broad spectrum of force options available with which to respond to WMD use against us.

There is another aspect of deterrence that is often overlooked, however. If our forces are equipped and prepared to deal with the effects of chemical or biological weapon use against them, that defensive capability takes on a deterrent effect of its own. Thus, effective active and passive defenses take away the advantages that an adversary might otherwise perceive it could gain by employing such weapons.

Counterproliferation Initiative

Two years ago we initiated the Defense Department's Counterproliferation Initiative (CPI), both in response to the lessons of the Gulf War and the conclusions reached as part of the Bottom Up Review, which reoriented U.S. defense strategy from an East-West Cold War orientation to a focus on Major Regional Contingencies (MRCs). The CPI supports our national counterproliferation policy, first by contributing to USG efforts to prevent the acquisition of NBC weapons or reverse it when it has occurred. If prevention fails, we must have the capabilities needed to deter the use of NBC weapons and to defend against the use of such weapons. The purpose of the CPI is to ensure that our forces will be able to prevail in future MRCs -- recognizing that our nuclear deterrent will always be a factor but should not be the only response option.

I would like to provide you with some examples of ways that we are improving our capabilities. We are not as good in all areas as we would like to be, but we are getting better. The first example is the protective suits that our forces wear if they fear they are about to come under chemical or biological weapons attack. The suits that our forces wore in DESERT STORM were heavy and very hot. As a result of the Counterproliferation Initiative, we have accelerated the procurement of a new suit for chemical and biological protection that is much lighter, more comfortable, which will not slow down or hinder our forces as much under war-time conditions, particularly under extremely hot climatic conditions.

A second example is improved detection equipment for chemical weapons. During DESERT STORM we had 1970's vintage detectors, which had a high false alarm rate. This created unnecessary anxiety among our troops, and required them to put on and take off their protective suits many times for no apparent reason. Next year, as a result of accelerated development under the CPI, we will field a new chemical weapons detector that has a much smaller false alarm rate.

A third example is the development of capabilities to attack and destroy hardened or deeply buried targets. This is among the hardest military problems we face in dealing with proliferation threats. We have under development a number of efforts to address this difficult challenge, using a variety of new technological approaches, which we would be happy to brief you on in closed session.

A fourth example is our new version of the Patriot, the PAC-3, which will be fielded in 1999. This is a significant improvement over the PAC-2 that we used in DESERT STORM. It has a hit-to-kill warhead, not a fragmentation warhead, which gives it a far greater lethality than the PAC-2. It has an increased range because it is a different interceptor and has a different radar. Thus, we will be fielding a much more capable defense against SCUD-like missiles than we had just a few years ago.

The result of the Counterproliferation Initiative will be the enhancement of two capabilities: a war-winning combat capability for two, near-simultaneous MRCs, and a closely related capability for civil response to NBC that can be

used to protect rear areas in a theater of conflict, the populations of coalition partners, or U.S. cities threatened by NBC terrorism.

Counterterrorism

DoD's NBC capabilities, especially those associated with civil response capability -- equipment, trained personnel, technical experts -- can and will be made available for responding to terrorist incidents. Overseas, DoD would follow the lead of the State Department, and domestically we would follow the lead of the Department of Justice (normally through the FBI) and the Federal Emergency Management Agency (FEMA). The procedures for accomplishing these missions are currently being worked out, including both a DoD biological/chemical emergency response capability that is functionally equivalent to the Department of Energy's Nuclear Emergency Search Team (NEST) program and a much broader counter-terrorism capability. In the case of domestic, NBC emergencies, especially those associated with civil response capability -- i.e., equipment, trained personnel, technical experts -- can and will be made available to civil law enforcement and emergency response authorities for responding to a domestic terrorist incident.

For crisis management, Special Operations Command (SOCOM) is prepared to provide its Special Mission Units to help resolve terrorist incidents. These units are always on alert, are trained in handling BW and CW agents and effects, have state-of-the-art protective suits and masks, and can render safe and recover of BW and CW agents. These SOCOM units are supported by a specialized Chemical/Biological Response Unit, consisting of a Technical Escort Unit which is trained to search, sample, recover, and transport agents; and on-call teams from the Army's and Navy's laboratories and CW/BW commands for expert knowledge on the scene. For consequence management, DoD would provide through FEMA, the capabilities of Army NBC Defense Units, together with military medical care capabilities and supplies. A number of initiatives exist for upgrading these capabilities, as well as for strengthening their links to civilian agencies, which would be the first to respond to such incidents, and to foreign governments.

DoD Counterproliferation Council

As part of our preparations, we are working to insure that counterproliferation pervades everything we do in DoD. It is not just a matter of acquiring new

system capabilities; it also requires new doctrine and increased emphasis on realistic training in NBC conditions so that the forces themselves understand that this is part of the war that we are calling upon them to be able to wage and win. To accomplish our goal of integrating the counterproliferation concept into the thinking of the Services, Joint Staff, Policy and Acquisition communities, we have recently established a Counterproliferation Council to coordinate DoD-wide counterproliferation-related activities. This Council is chaired by Deputy Secretary of Defense White and will have among its members the Vice Chairman of the Joint Chiefs of Staff as well as senior officials from the Services, OSD, and the Joint Staff.

Conclusion

I have described a selection of our initiatives in the Counterproliferation area. We have many activities underway, but we know that we have more to do. Proliferation of nuclear, biological, and chemical weapons and their delivery systems present a daunting challenge. We will need perseverance, patience, and imagination to combat this threat. It is possible to prevent proliferation, at least in some cases. We have had a dramatic reduction in the threat from the former Soviet Union, in large part through U.S. cooperative efforts. The Nuclear Non-Proliferation Treaty has been extended indefinitely. Since the beginning of the decade, six countries: Ukraine, Kazakstan, Belarus, North Korea, South Africa, and Iraq, that might have been nuclear powers have turned away from that path.

In the current global security environment, we recognize that, despite our strong and continuing pursuit of non-proliferation diplomacy, it will not be possible to prevent proliferation all the time and in all places. When proliferation occurs and U.S. interests and commitments are involved, it is the responsibility of the Department of Defense to make certain that we are able to prevail on the battlefield, even against opponents who possess nuclear, chemical or biological weapons and missile delivery systems.

Mr. WELDON. Mr. Einhorn, did you have an opening statement?

Mr. EINHORN. Thank you for giving me the opportunity to.

I don't have an opening statement, but let me agree with your initial comment, that talk is cheap. The administration wants to be judged not by its talk, although you were complimentary about our talk, but about our accomplishments, and I think they have been substantial.

Mr. Wallerstein has mentioned a number of them. Perhaps we could submit to the record the testimony that Dr. Davis provided to the HIRC yesterday, which enumerates a number of the accomplishments we believe that have been achieved during this administration in the area of nonproliferation. We think they are impressive and they are a function of giving very top priority to no proliferation in our national security policy.

Whether it is in the area of North Korea or Iraq, or in thwarting the efforts of Iran, taking on the hard ones like China and Russia and so on, I think the record has been impressive, and we would like your subcommittees to have the benefit of this testimony.

But I listened to your opening remarks and those of Chairman Hunter very carefully. I welcome the opportunity to respond to some of the specifics, because we have a disagreement on some of those points.

Thank you.

[The prepared statement of Mr. Einhorn follows:]

Controlling the Spread of Dangerous Weapons: An Overview of the Clinton Administration's Non-Proliferation Policy

Testimony Submitted for the Record, House International Relations Committee

Under Secretary of State for
Arms Control and International Security Affairs

Preventing the proliferation of dangerous weapons is key to preserving the security of America in the post-Cold War world. The Clinton Administration has made controlling the spread of such weapons one of its highest priorities.

Let me describe our major accomplishments, and then turn to the challenges ahead.

Accomplishments

- The indefinite extension of the Nuclear Non-Proliferation Treaty (NPT) in 1995, without conditions, provides a permanent framework for our efforts to prevent the spread of nuclear weapons.

- The U.S.-North Korean Agreed Framework has frozen the North Korean nuclear program. Implementation of the Agreed Framework in the coming years will remove the nuclear threat posed by North Korea to regional and global stability.

- As a result of the Trilateral Statement brokered by the U.S., Ukraine has joined the Nuclear Non-Proliferation Treaty as a non-nuclear weapons state, and transferred all nuclear warheads in its territory to Russia for dismantling. We have also been successful in getting Kazakstan and Belarus to accede to the NPT. All nuclear weapons have been removed from Kazakstan, and the small number of the remaining weapons in Belarus will be removed this year.

- Highly enriched uranium extracted from dismantled Russian nuclear weapons is being converted into commercial reactor fuel and delivered to the U.S. for use in our nuclear power plants.

- In the coming year, we will be working with Russia and other NIS countries to improve the security at more than 35 fissile material storage sites, roughly three-fourths of all such locations, and provide better accounting for hundreds of tons of weapons-usable nuclear material.

- We have increased cooperation to help ensure the maintenance of security during shipment and storage of Russian nuclear weapons in support of their destruction. We are providing Cooperative Threat Reduction assistance including security upgrade kits for nuclear weapons railcars, emergency support equipment, and supercontainers to support the increase in transportation of nuclear weapons scheduled for elimination.

- We have taken concrete bilateral steps to combat nuclear smuggling, as in the case of Project Sapphire where multiple bombs' worth of Highly Enriched Uranium was transferred from Kazakstan to the United States.

- U.S. leadership at the Moscow Nuclear Summit achieved a strong endorsement of international efforts to strengthen the IAEA safeguards system and its ability to detect clandestine nuclear activities; the launching of a multilateral program to combat nuclear smuggling, involving the G-7 countries, Russia, and Ukraine; the initiation of a systematic study for international cooperation to dispose safely of excess plutonium from dismantled weapons; and Russian endorsement of the principle of "safety first" in the operation of nuclear power reactors.

- More than thirteen thousand scientists from Soviet WMD programs are conducting peaceful scientific projects in U.S.-funded science and technology centers in Moscow and Kiev. These centers provide financially rewarding work that will reduce the risk that these scientists will be lured away by money from rogue or terrorist states.

- In 1996, the U.S. signed the relevant Protocols to Nuclear-Weapons Free Zone (NWFZ) treaties in the South Pacific and Africa, thereby strengthening the role of these treaties in the international nuclear non-proliferation regime.

- The U.S. has played the principal role in helping the United Nations build a strong mechanism to monitor Iraq's capabilities to produce weapons of mass destruction, and in maintaining support for continuing economic sanctions pending Iraq's compliance with all of its Security Council obligations.

- Russia, Brazil, Argentina, South Africa, South Korea, and Ukraine have accepted international guidelines preventing the spread of missiles and missile technologies, as called for by the Missile Technology Control Regime (MTCR).

- The Chinese in 1994 committed to a global ban on sales of MTCR-class ground-to-ground missiles, a more strict commitment than the MTCR requires, and reaffirmed their original commitment to these guidelines.

- The U.S. obtained clarifications and assurances regarding China's nuclear non-proliferation policies, including a significant new commitment not to provide assistance to unsafeguarded nuclear facilities.

- In an agreement with the United States, Russia agreed to close down its arms sales to Iran in the coming few years and in the future not to transfer arms or arms-related technology. Transfers under existing contracts will be reasonably limited in time and content, and will not provide Iran with new capabilities, alter the regional military balance, or compromise our ability to ensure our security in that part of the world.

- U.S. leadership has brought together more than 30 countries to establish the Wassenaar Arrangement, a new international regime to increase transparency and responsibility for the global market in conventional armaments and dual-use goods and technologies. This regime aims to prevent destabilizing future accumulations of arms and to deal firmly with today's threats to security through restraint in trade to the pariah countries.

The Non-Proliferation Challenges Ahead

The NPT and Beyond

In extending unconditionally the Nuclear Non-Proliferation Treaty, the parties set three very important goals: concluding in 1996 a Comprehensive Test Ban Treaty (CTBT), undertaking negotiations to ban the production of fissile materials for nuclear weapons purposes, and strengthening the IAEA safeguards system so as to increase the ability to detect undeclared nuclear facilities. The Clinton Administration is giving these activities its highest priority.

The CTBT will be a truly comprehensive test ban which will constrain development of nuclear weapons among nuclear aspirants and threshold states, as well as the development of new types of nuclear weapons by nuclear weapon states. Under a CTBT, the United States will retain confidence in the safety and reliability of our nuclear stockpile. Our goal is to open a CTBT for signature this fall.

The Chemical Weapons Convention

The Clinton Administration also attaches a high priority to strengthening the international norm against chemical and biological weapons. To that end, the President has called upon the Senate to ratify the Chemical Weapons Convention as soon as possible. This international treaty outlawing poison gas will make an important contribution to our efforts to stem the spread and use of chemical weapons, including by terrorist organizations. The U.S. is also working closely with other countries to negotiate a new, legally binding protocol to enhance compliance with and deter violations of the Biological and Toxin Weapons Convention.

Russian and Chinese Nuclear Cooperation with Iran

We remain deeply concerned by Iran's pursuit of weapons of mass destruction, particularly nuclear weapons. We have carefully monitored and sought to impede Iran's attempts to procure a range of nuclear technologies that are unnecessary for, and in our view inconsistent with, a purely peaceful nuclear program.

Our policy remains to oppose all nuclear cooperation with Iran and prevent transfers of any nuclear material, equipment, or technology to Iran. We have agreement on that policy among the other G-7 countries. Our focus is now on Russia and China, which continue to engage in certain kinds of nuclear cooperation with Iran.

We have been encouraged by Russian statements opposing Iran's acquisition of nuclear weapons, but we will continue to press Russia to cut off all assistance to Iran's nuclear program on the grounds that any nuclear cooperation, even that which may be technically permissible under the NPT and subject to IAEA safeguards, will assist Iran's nuclear development effort, including the provision of light water reactors.

The President recently determined that continuing assistance to support democratic and economic reform in Russia is important to the U.S. national security interest, and thus invoked the waiver provision of the Foreign Operations Appropriations Act regarding nuclear cooperation with Iran. The President's decision to take this step reflects the view that cutting off assistance to Russia at this juncture would not positively affect the dialogue on limiting Russian nuclear cooperation with Iran and would undercut the reform process in Russia.

Ours is a long-term strategy. Iran's current financial difficulties will affect its ability to pay for nuclear facilities it hopes to acquire and, with time, we expect there to be more direct evidence of Iran's nuclear intentions. Both of these factors will work in our favor. In the meantime, however, we will continue to press for the termination of all Russian and Chinese nuclear cooperation with Iran.

China has played an active role in Iran's civil nuclear program since the mid-1980s and maintains that its assistance is strictly for peaceful purposes. Chinese sales of nuclear facilities to Iran -- small research reactors and other related facilities -- have been subject to IAEA safeguards. Last fall, China suspended its plans to sell Iran two small power reactors due to difficulties in site selection and financing. Its cooperation with Iran appears consistent with its NPT obligations, and we have no reason to believe that China would knowingly assist Iran to acquire nuclear weapons. Nonetheless, we have opposed, and will continue to oppose the Chinese government's cooperation with Iran's civil nuclear program, emphasizing to Beijing that such cooperation will help to build a nuclear infrastructure that could assist Iran's acquisition of nuclear weapons.

Missile Non-Proliferation

We continue to have serious concerns regarding Chinese missile cooperation with Pakistan and Iran, which could contribute to Pakistan and Iran's acquiring delivery systems for weapons of mass destruction; transfers by Chinese entities of dual-use chemicals and equipment that could be used in Iran's chemical weapons program; and China's transfers of conventional weapons to Iran. We have raised our objections to such activities at the highest levels of the Chinese government.

We keep under continuing review the evidence to see whether any of these activities trigger U.S. sanctions. For example, we are now addressing whether the transfer of Chinese built C-802 cruise missiles is sanctionable under the Iran-Iraq Arms Non-Proliferation Act of 1992. The Act provides for the imposition of sanctions when a foreign person or country transfers goods or technology "so as to contribute knowingly and materially to the efforts by Iran or Iraq ... to acquire destabilizing numbers and types of [certain] advanced conventional weapons." Similarly, we continue to monitor and evaluate reports that China may have transferred missiles, missile equipment or related technology to Pakistan or Iran, activities that could trigger sanctions under U.S. law.

As this Administration has demonstrated in the past, we will impose sanctions as required by our law in order to achieve our overall non-proliferation goals.

Iraq

The challenge of enforcing Iraqi compliance with Security Council resolutions will continue to require Security Council unity and resolve. For our part, this will require alert, energetic diplomacy; solid day-to-day support of U.N. inspection operations; and both political and military readiness to respond to any renewal of Iraqi threats against either U.N. inspectors or Iraq's neighbors.

In March -- when Iraq last blocked access to the U.N. Special Commission (UNSCOM) inspectors -- Iraq forced the Security Council to act to remind Baghdad of its obligations. The U.S. Government hoped that the message it sent registered. At that time, we explained that Iraq would only respond if the Council acted quickly and forcefully. Having failed to respond adequately then, we now see Iraq blocking U.N. inspection teams again.

Let me be clear. The Iraqi regime must not be allowed to interfere with the work of UNSCOM. As Secretary Christopher noted earlier this week, UNSCOM must receive immediate and unrestricted access to Iraqi facilities.

That is why it is so important that our message be swift and strong -- and the U.S. Government is working with other members of the Security Council to assure that the Council acts firmly.

Conclusion

Assuring security for Americans, and enhancing international security, is a critical priority of this Administration. Non-proliferation and arms control remain key to accomplishing that goal. To succeed, we need to be sensitive to the underlying causes that drive countries to acquire dangerous arms. We must frame a multilateral approach and be able to use our sanctions legislation to complement our diplomacy. We will not succeed unless we can enlist the cooperation of our key friends and allies. The roles of both China and Russia in our cooperative efforts will be critical to our success.

U.S. leadership has been essential in our successes to date, and we remain committed to continue that leadership as we face these remaining challenges.

Mr. WELDON. Thank you both.

You will have ample opportunity today to respond.

I would not—we are going to have to operate under the 5-minute rule but will go to multiple rounds of questioning for as long as we can keep the room. I would like to stay all afternoon, there is another hearing. We will ensure all Members have an opportunity.

Let me state at the outset that while I was rather harsh in my criticism of some very specific instances, as I think certainly you know, Mr. Einhorn, I have the same ultimate goal when it comes to Russia as Strobe Talbott and this President, and I have supported many of the initiatives to accomplish that.

I have supported the Cooperative Threat Reduction Program. I have authored pieces of our defense bill that focus on Russian initiatives, and have a new initiative underway now and do a ton of work with Russia in energy, the environment and in defense. But I think one of the things in the time period that I have dealt with the Russians that they most respect is when you are honest and candid with them.

I will be frank and honest, I feel that we have this notion that since our end policy conclusion is already known, in this case, that Boris Yeltsin and democratization and free enterprise succeed, which I want and I think all of us want, that we don't want to ask tough questions from time to time because we know that perhaps we will have to make some tough choices that will require perhaps an undermining of the same person in terms of his election, which happily he at least won the first round this past weekend.

Let me ask about the issue of the transfer of the advance accelerometers and gyroscopes. That happened in mid-1995, the Washington media reported it in December 1995. I was in Moscow January of 1996. I asked embassy officials about it. They basically said they knew nothing about it.

When I asked Ambassador Pickering, have we demarched Russia? He said, no, we haven't. I said, why not? And he said, we are still looking at the issue.

I wrote the President the end of January. I did not get a response until April 3. The response the President left was the statement that I read to you, that we basically are poo-pooing this. We fully expect Russian authorities to investigate this case and provide us the details of this investigation.

The reason why this is so important is because these accelerometers and gyroscopes which went to Iraq which we know from the technical standpoint could only be used for long-range Intercontinental Ballistic Missiles [ICBM's] and were not the only isolated case of this type of technology being transferred to Iraq, presents a major dilemma for us in the fact that Iraq is trying to obtain a long-range ICBM capability.

Have we yet heard from the Russians? We are here toward the end of June. The President told me April 3, "We expect the Russian authorities to investigate and provide us the details of their investigation as well as take steps." What is the response to the President's letter to me on April 3?

Mr. EINHORN. Mr. Chairman, I want to dispel any impression that the administration is poo-pooing this very serious transfer of technology. We take this very seriously.

Our knowledge about this information comes largely from its seizure by Jordan of this equipment that was transiting its territory, and Jordan working together with UNSCOM, the U.N. special commission, actually uncovered this information.

UNSCOM has been persistent in pressing Iraq for more information as well as working with Russia to get more information. And a lot of our information comes from those sources as well as some independent sources. And we discussed this in the closed portion of the hearing today.

We have taken this issue up with the Russian Government at senior-most levels on a number of occasions, most recently last week when I spoke with a senior Russian export control official. Secretary Christopher took it up with Foreign Minister Primakov, pressed him for a response. We were assured that they were conducting a very serious investigation of what happened and were awaiting results of that inquiry.

Russia owes UNSCOM an answer to its request as well. From information we have independently, we have no indication that the Russian Government sanctioned this transfer of what is very sensitive technology. This appears to be a smuggling operation, but we will await a full report to make up our minds, and we will share the results in appropriate settings with these subcommittees when we get those.

But what I think it indicates, as you suggested, Mr. Chairman, was that Saddam Hussein and Iraq are seeking longer-range missile capability.

You used the term long-range ICBM. I think Iraq is a long way away from aspiring to an ICBM capability, but these were components of Soviet strategic systems, and—which these are of long-range systems and clearly indicates a desire on Saddam Hussein's part to acquire long-range capability, which is very worrisome. I would like to comment that we believe Iraq is a good way away from achieving that capability.

Mr. WELDON. Can you give me a date when we expect this report from the Russians, or do you have a self-imposed deadline? This is not going to go on forever. The investigation can't go on forever. This occurred almost a year ago now.

Mr. EINHORN. I can't give you a date because the Russians haven't given us a date, although we have pressed them for their earliest possible response.

Mr. WELDON. My point is, if we are going to bring in a country like Russia to the missile test control regime [MTCR], they have to understand they have to abide by the terms. One of my key concerns is, and I am not anti-arms control agreements, but when you enter into an arms control agreement part of that is you have to be willing to make the tough calls when they occur and you can't look down the road and say, well, we can't demarche them because that is going to require sanctions and sanctions are going to embarrass Yeltsin and that is going to affect the election.

I hope that is not what the administration is using, but I can tell you that is the sense that I get. I would like to know that we are going to have a response from the Russians in a month, in 2 months, or is it going to be 5 years?

Mr. EINHORN. Mr. Chairman, if it is your impression that we don't press the Russians when we see examples of this kind of occurrence, then you have a wrong impression, because we do. Whenever a situation comes up which indicates that Russian export controls may not be strong enough, we go to them, we bring this situation to their attention, we ask them to investigate, we ask for good explanation, we ask for them to strengthen their controls.

Incidentally, in conjunction with the Cooperative Threat Reduction program, which I know you support, we have worked with them in order to strengthen their export control system. It needs further strengthening, obviously. Otherwise this smuggling incident would not have occurred.

Mr. WELDON. You say that you act aggressively. My own experience was, I think this incident occurred in midyear last year, I started asking the questions in January.

At that time the ambassador could not even confirm that we knew about the incident even though the Washington media had detailed even to the extent of saying that our intelligence people had the items in their possession. Yet, I as a Member of Congress, could not get a confirmation that we were even aware of it let alone asking the Russians about it. We didn't demarche the Russians until the latter part of the first quarter of this year.

What can you say to us publicly about the M–11 and what has occurred there and what has been reported in the press repeatedly about what the administration is hedging, and that is whether or not the Pakistanis in fact have the missiles that are in question?

Mr. EINHORN. Well, as far as the press leaks that appeared recently are concerned, we feel it is reprehensible that some officials took it upon themselves to disclose information about what were ongoing intelligence assessments. Those assessments are not yet completed. When they are completed, I am sure appropriate congressional committees will be briefed in the normal fashion. But they are not completed. They are a work in progress.

Our approach on the M–11, what we know, in late 1992, we believe there was a shipment of M–11-related technology from China to Pakistan, and we were convinced that that was M–11-related equipment and technology. And because of that, we imposed sanctions on both China and Pakistan for that transfer in violation of our law.

We were not confident of precisely the nature of that shipment. Specifically, we did not have sufficient information to draw a high-confidence conclusion that fully assembled missiles were transferred. And that is why we imposed category 2 sanctions.

Now, in October 1994, we concluded an arrangement with the Chinese in which they undertook a new obligation not to transfer ground-to-ground missiles of MTCR class. This, in fact, goes beyond the rules of the MTCR. In the MTCR you have a presumption of denial of these MTCR-class missiles.

Here they said categorically we won't make these exports, and since October 1994 we haven't received any evidence that they have provided such exports. But we still have uncertainty about what was transferred in late 1992, and that is what all the controversy has been about and that is part of the issue that the intelligence community is now reassessing.

But in terms of sanctions, we don't impose sanctions lightly. The potential cost of an erroneous determination is so high that we want to make sure we adhere to a high standard of evidence before making that determination, and we don't believe we have it in this case at this point.

Mr. WELDON. Thank you.

Mr. Spratt, our distinguished ranking member.

Mr. SPRATT. Do we have a vote?

Mr. WELDON. We have 10 minutes.

Mr. SPRATT. You mentioned one thing in which I have had a long-standing interest, a system of rigorous accounting for nuclear materials that have been produced in the former Soviet Union over the last 30 or 40 years. We have given this administration and prior administrations the authority to waive limitations that would otherwise apply to the release of this information, provided there was a reciprocal exchange of data as to production of enriched uranium, plutonium and tritium.

Where do we stand in our efforts to establish a complete revelation by the Russians and the other former Soviet Union states that produced nuclear materials, of what was produced and where it is located today, and how we can keep a record of it on a continuing basis?

Mr. EINHORN. Mr. Spratt, we can't give you a complete answer. As you know, our Department of Energy has done its best to be very open in providing the public information about our fissile material stocks. Secretary O'Leary has been a leader in this effort. We have pressed Russia also to be as open as we have been, and so far there has not been as much readiness to provide this information.

But this is one of the goals that has been blessed at senior levels by the Russian Government, including at summit meetings and we will continue to press for greater openness on Russia's part.

Mr. SPRATT. Where do we stand with respect to the construction of the storage facility at Tomsk where the dismantled nuclear components can be kept?

Mr. WALLERSTEIN. I believe that substantial progress has been made in that area. I don't have the details but would be happy to respond for the record.

Mr. SPRATT. Do you know if they have started construction?

Mr. WALLERSTEIN. I do not believe actual construction has started yet but I will respond for the record.

[The information referred to follows:]

QUESTIONS FOR THE RECORD FROM REPRESENTATIVE SPRATT

Where do we stand with respect to the construction of the storage facility at Tomsk where dismantled nuclear components can be kept? Do we know if the (Russians) have started construction?

Answer. The United States and Russia have a joint project underway at Mayak in Russia to construct a fissile material storage facility that will eventually contain up to 50,000 containers of fissile material from dismantled nuclear weapons. This project has begun to make significant progress in the last year. The design has been completed to the 35 percent level and construction is ongoing. The foundation should be complete later this summer and then construction of the external walls and doors should begin.

The United States and Russia initially discussed construction of a fissile material storage facility at Tomsk. Subsequently, Russia discussed construction of two stor-

age facilities, one at Mayak and one at Tomsk but then decided to go forward with the construction of Mayak and to delay beginning a facility at Tomsk. At this time, there is no planning underway between the United States and Russia to construct a facility at Tomsk. The efforts and resources on both sides are focused on completing the storage facility at Mayak by the end of 1999.

Mr. SPRATT. Thank you very much.

Mr. WELDON. When we come back Mr. Hunter will be asking questions.

We have 3 votes here, a 15-minute vote followed by two 5-minute votes, so we will not be back until close to 1 o'clock. We may have to fight for this hearing room so be prepared to join in the foray or you may be saved by the next hearing.

The subcommittee stands temporarily in recess.

[Recess.]

Mr. WELDON. The subcommittees will reconvene.

I understand that we have answers to the questions.

I will recognize Dr. Wallerstein, and following that, Mr. Hunter.

Mr. WALLERSTEIN. We were asked a question about the status of the Tomsk plutonium storage facility. It turns out that the accurate information is that the facility which we are directly subsidizing is the Miac facility. Construction work has begun on Miac. It is projected to be completed sometime during the year 2000, so work is underway now. Work has been progressing at a slow rate, but is progressing.

The second question had to do with status of inventory on Soviet fissile material stocks. These discussions are ongoing with the Russian Government as well as with other governments of the former Soviet Union, but to date we have not reached agreement on exchange of data.

Mr. WELDON. Mr. Hunter.

Mr. HUNTER. Thanks for being with us.

And, Mr. Einhorn, you wanted to have an opportunity to address some of the specifics that I went through in my opening statement, so I want to give that to you. But I want to lead with a headline here in one of the Washington newspapers, "Pakistan nuclear program at 'screwdriver level,'" meaning that they are at a point where they could construct and assemble, according to the press, nuclear systems.

The magnetic rings supplied by China would replace rings that have been worn out at Kahuta. They could also be used to increase Pakistan's capacity to enrich uranium. With Chinese help, the Pakistanis are also developing the ability to produce weapons-usable plutonium as an alternative to their existing uranium facilities.

We are very concerned about that. At the same time we are poised for a continuation, to decide on a continuation of MFN status for China. My question is, have you requested in this area of reported assistance in the Pakistani nuclear weapons program, have you requested, has the administration requested as a condition of most favored nation [MFN] any restraint of that program from the Chinese side?

Mr. EINHORN. Mr. Chairman, Chairman Hunter, we have been in almost constant contact with the Chinese about their nuclear cooperation with Pakistan. Chinese cooperation with Pakistan has been long-standing and it has been a very troublesome record.

In the distant past, the Chinese were engaged in activities with Pakistan that would clearly be violations of the Nonproliferation

Treaty had they been party to the NPT at that point. Earlier in the classified briefing you heard some of that. Since 1992, China has been a member of the NPT and we have seen a reduction but not the termination of some questionable activities, and we have been discussing those activities constantly with them.

One of our concerns has been Chinese assistance to unsafeguarded nuclear facilities. So this became a big issue in the so-called ring magnet controversy. And one of our key objectives was to get a commitment from China that they would not provide assistance to unsafeguarded nuclear facilities. And they did that in that case and indicated that commitment not to provide assistance to unsafeguarded facilities would preclude future transfers of ring magnets to such facilities.

This was a significant development. It went beyond where the Chinese were before. We will monitor carefully their implementation of that commitment, but we think this is a big step forward.

You referred to a plutonium production facility a moment ago. What that is is a research reactor near Khushab that is similar to the research reactors that have been used by a number of states to acquire plutonium for nuclear weapons programs, and that is our concern about that reactor. When Mrs. Bhutto was here a couple of years ago, she was asked about this reactor, and she said it was for scientific purposes.

Our view is, if it is for scientific purposes, why not put that reactor under international safeguards to preclude its use for production of plutonium for nuclear weapons? We will continue to press the Pakistanis to put that reactor under safeguards, and we will also press the Chinese to live up to their new commitment not to provide assistance to unsafeguarded facilities, which is what this reactor is at the moment.

Mr. HUNTER. My question to you, though, obviously we have a deal in the process, a point of leverage right now with China. That is the pending MFN determination. That is a point of leverage. Understanding that you are talking with the Chinese all the time and you are trying to receive assurances from them all the time, have you attempted to use this point of leverage, this MFN status renewal as a point to secure some very dramatic and what you hope will be long-standing agreements by them to limit, to refrain from assisting Pakistan in their development of nuclear systems?

Have you used that as a lever? Have you used that as a condition or have you conditioned the MFN with some tough requirements on their part?

Mr. EINHORN. I understand the question. No, we have not done that. What we have relied upon are existing policies, existing sources of leverage that we have, one of which is legislation on the books, in particular section 825 of the Nuclear Proliferation Prevention Act [NPPA], which, as you know, indicates that export-import loans, cooperation to a country that willfully aids or abets a nonnuclear weapons state in the acquisition of unsafeguarded special nuclear material would be cut off, and that was the ring magnet controversy we engaged in.

So rather than have MFN as the source of our leverage, the Chinese understood that the risk here was that there would be a violation of section 825 of the NPPA and we find that we have sufficient

policy tools, sufficient leverage independent of MFN to pursue our nonproliferation objectives.

Mr. HUNTER. A follow-up question. Then you are satisfied that the Chinese have made sufficient commitments to solve this problem of their assistance of Pakistan in its development of nuclear weapons. You are satisfied with that assuming that they do what they have told you they are going to do? You don't see other problems?

Mr. EINHORN. If they implement faithfully this new commitment, this will go a long way to resolve our long-standing concerns. There are a variety of interactions between Chinese and Pakistanis over the years that have been some concern to us, but we mean to continue to raise all of our various concerns about Chinese nuclear cooperation with Pakistan and, incidentally, with Iran as well.

Mr. HUNTER. So you have some unsolved problems here?

Mr. EINHORN. We have outstanding problems that we are going to continue to work at.

Mr. HUNTER. So my question to you is, when you have this point of leverage with MFN that means a lot to them, why not wrap up some of these unsolved problems and put together a commitment package you want them to sign up to and try to get that signed up while you have this point of leverage? Once the point of leverage is lost and once we renew the status, you are not going to be able to retrieve it.

Mr. EINHORN. One reason is because MFN or the threat to terminate MFN is a threat——

Mr. HUNTER. I don't think you would have to pose it as a threat but as a commitment you would like to have from them in return for $30 million in hard capital every year they get in a very nice way.

Mr. EINHORN. If we terminated MFN, yes, it would hurt China significantly. It would hurt the United States, U.S. consumers, U.S. manufacturers significantly also.

Mr. HUNTER. Assuming that you want to have MFN, this is a deal you want to have for our side because you think it is beneficial, the good businessman when he bargains for something, if he thinks he can get some additional conditions or benefits conferred that he wants to put in the contract, he puts them in. Assuming you like MFN for economic reasons, the Chinese like it a lot, too, because they get a lot of hard dollars out of this and they have a $30 billion surplus over us, not vice versa. So my question is whether or not you folks look on this as an opportunity to get some long-standing commitments that you haven't been able to secure by simply raising the questions—businessmen can raise questions with each other over coffee tables and sometimes get attitudes adjusted and sometimes get benefits conferred, but most of the benefits are conferred pursuant to consideration of changes to contracts.

You have an opportunity here to get some commitments, and once this thing passes you can't bring it back up and that point of leverage is past. You think it doesn't make sense to use this as a point of leverage; that is what you are telling me?

Mr. EINHORN. Essentially, that is correct. There are only seven countries in the world where we don't have a Most Favored Nation status situation at the moment. We think MFN is, it is not a, some

special prize, some special favor. In fact, its preclusion is a very extraordinary kind of situation if there are only seven countries that don't have it. We think that there would be real political implications in not renewing MFN.

Mr. HUNTER. You continue to miss my point. My point is that you shouldn't renew MFN but that you might try to extract a commitment from the Chinese on the eve of MFN in this area. We politicians do that all the time, when we have another committee that is going to move a piece of legislation that needs our interaction and support, and businesspeople do that all the time in terms of trying to get as many benefits accrued to your constituency as you can.

If we got a bigger point of leverage in the next 10 years with respect to China, I would like to hear about it. But I don't think you should go in on the basis, and no businessman goes in on the basis that it is a nice deal so he doesn't want to get another commitment that he might have been able to get. You get as many commitments as you can.

I don't think it is an unreasonable commitment to try to get a commitment that will accrue to the benefit of world peace and stability. That is not a mean thing. We are not trying to get oil or do some cruel thing to China.

Obviously, you folks don't think that this point of leverage should be exercised there. I just wonder if you had tried to get commitments on this eve of the status determination?

Let me go to these issues. I want you to have a chance to walk through these. First was the United States supercomputers that the administration is considering—my understanding is considering to be shipped to the Russian nuclear weapon laboratories, including Arzima 16, where a lot of Soviet nuclear weapons have been in the past manufactured.

Second, the administration's determination to remove jet engine hot-section technology and commercial communication satellites from the list of items controlled under the munitions list to jurisdiction under the Commerce Department's commodity control list, which we have interpreted as a relaxation in restrictions on export.

Also if you might mention, if you could, the Commerce Department's 1994 licensing for export of stealth coating that could be used to defeat Patriot missile systems.

Further, you might talk a little bit about any U.S. communications technology with military application that has been transferred to a joint venture owned in part by the Chinese People's Liberation Army.

Walk through those instances, please?

Mr. WALLERSTEIN. Mr. Chairman, I am prepared to answer those questions.

Mr. Chairman, with respect to the question of the possible sale of high-performance computers to the Russian Nuclear Weapons Laboratory, Arzima, I would like to note that in 1995 the administration announced a revision of its policy with respect to so-called high-performance computers which took account of the rapidly changing technology parameters. We commissioned a joint study sponsored by the DOD and the Department of Commerce, a study by outside experts at the University of Arizona that examined the

rate of change and the nature of the change of the technology going into high-performance computers.

On the basis of that study, we have proposed within the interagency, and want agreement on a modification of the control parameter levels that simply reflected the reality of the world marketplace, that that is the nature of the machines that were widely available throughout the world and therefore could no longer be controlled by the United States.

Mr. HUNTER. Are you saying that there was a substitute for the supercomputers that could be acquired from somebody else that was just as good?

Mr. WALLERSTEIN. I am saying that at the low end of the range, that there were many sources of supply because of the nature of the way that these machines are now assembled.

Mr. HUNTER. On that point, the low end—when the KGB sold the nine axis milling machines to the Soviet Union to quiet their propellers, there were milling machines on the low range which presumably could have done that over a much longer period of time, but we considered it to be a violation of COCOM to sell the more efficient milling machines. We are not talking about a range of machines but about a specific sale of machines.

Were machines that were the equivalent of these supercomputers available to the Russians from somebody else anyway; that is the question. Not the range.

Mr. WALLERSTEIN. I was giving you the background to the current situation.

Mr. HUNTER. Foreign availability is a major component in this discussion. Was there foreign availability of computers that had this capability?

Mr. WALLERSTEIN. Sir, no machines have been transferred to Arzima, so this is a hypothetical discussion.

Mr. HUNTER. There are specific machines that are proposed for licensing. Are there other machines of equivalent capability that they could shop for if they didn't get ours, that they could buy?

Mr. WALLERSTEIN. Some of the proposals that have been made by the companies do involve machines where there are alternative sources of supply, but I hasten to add that there is currently no license pending for a transfer of a high-performance computer directly to the Arzima laboratories.

Mr. HUNTER. Then can you describe what the consideration is, how it is manifested? The administration was considering this. What does that mean?

Mr. WALLERSTEIN. The administration continues to consider on a case-by-case basis, according to the policy that I described a moment ago, any transfer to a country which will not be directly to a military end-user or will be used for proliferation.

Mr. HUNTER. But not in the general category. These computers have been under consideration, people have wanted to sell these computers, meeting with the administration saying we would like to sell these. Now they are either at a point where the administration is saying, no, you can't, or they are saying, yes, you can, and they have made that determination, or they are saying give us more information. We are considering it.

What is the state of play with respect to the administration and these particular supercomputers? What is happening here?

If I am the CEO of this company and I am asking you how are we doing on the computer sale, what would you say?

Mr. WALLERSTEIN. I have given you the generic policy approach. What I can only tell you then is with respect to a specific license, I am not at liberty to discuss licenses that might be pending. That is the stated administration policy on these matters.

Mr. HUNTER. You mean you can't tell us whether it is almost, they have almost made a deal or they are not close to it?

Mr. WALLERSTEIN. I can assure you that no deal has been made.

Mr. HUNTER. We will be the first to know; right? So you are not going to tell us.

Mr. WALLERSTEIN. This is the standard policy with respect to proprietary information related to companies that submit information for license consideration.

Mr. HUNTER. Then I want to go back to my original question then, because obviously this has been a proposed sale. Is there another supercomputer that is the equivalent of the supercomputers that are proposed for the sale to the weapons laboratory at Arzima 16, is there another supercomputer available on the world market that is equivalent of the one that is proposed for this sale, that is not beyond your policy restrictions to tell me that?

Mr. WALLERSTEIN. As I previously had indicated, some of the ideas that have been discussed, there are other computers that are of that power and speed. Again, I am not at liberty to go into details as to the specific proposals that any given company might be making on this matter.

Mr. HUNTER. I am not asking about specific proposals. I am asking about under the law that exists and the control regimes that exist, let's not beat around the bush; under the foreign availability issue, are there foreign available supercomputers of the equivalent capability available to Arzima 16?

I don't care if they have made a deal with them or proposed, but you know what is out there in the world market that can be sold legally. Are there supercomputers of the equivalent capability of the ones that are proposed for the administration sale to Arzima 16?

Mr. WALLERSTEIN. I would be happy to come and discuss it with you on a personal basis, but I can't at this time give more detailed information because it would imply revealing the proposals that various companies may be making to the government on this matter. But I can assure you that there is no sale proposed or pending to the Arzima laboratory or to any other nuclear weapons lab directly.

Mr. HUNTER. Let me rephrase the question. You don't want to tell me there may be other supercomputer proposals for sale to the Russians? Are there other supercomputers available on the world market outside of the United States that are the equivalent to the computers that were proposed to be sold to Arzima 16?

Mr. WALLERSTEIN. The nature of the policy that we now have in place has to encompass a wide range of computer power and capability because that is in fact the nature of the computers, that they range from several thousand million theoretical operations per sec-

ond, up to terraflops, as they are called, much, much larger ranges of power. So it is impossible to give you a specific answer to this question. We are talking about a very wide range of computing capability.

Mr. HUNTER. Here is what I would like you to do, then; if you don't have it or you can't reveal it, we want to know. So let's have a classified briefing you can come in and tell us and get geared up on the issue of foreign availability.

Mr. WALLERSTEIN. We would be happy to come and talk to you personally about the matter. You have a General Accounting Office [GAO] investigation under way and we certainly are cooperating fully with that investigation.

Shall I continue with the other——

Mr. HUNTER. Yes. Let's go to the jet engine hot-section technology.

Mr. WALLERSTEIN. In March of this year, the President announced that he was transferring the regulatory control of commercial, and I want to emphasize clearly, commercial jet engine hot sections as well as commercial communication satellites from the control under the international traffic and arms regulations of the Department of State to the Export Administration Regulations administered by Department of Commerce.

The important point to emphasize here is that this represents no decontrol of either of these technologies. It represents, in fact, a rationalization of the way that both are handled since it would mean that companies will not have to deal with dual-license requirements between the two departments. But along with the decision to transfer these technologies, the President issued instructions that the Department of Commerce was to develop a process for handling both which was more rigorous than is normally applied to other dual-use technology.

Mr. HUNTER. Okay. Let me summarize on what you have told us so far. If it is on the State Department's munitions list, there is a duality that is involved that brings in DOD, tell me if I am wrong, to review this as well as State Department; is that right?

You said that you talked about moving it from one jurisdiction to another. Did you mean departmental jurisdiction?

Mr. WALLERSTEIN. Yes; from the State Department to the Commerce Department.

Mr. HUNTER. So if it is on the State Department's munitions list, the State Department has placed a scrutiny on these things in the past—excuse me, I said DOD, that at least, in my estimation, is a fairly intense scrutiny, and that is my experience from hearing American companies come in and complain about the State Department not allowing certain satellite technology and other stuff to go to China.

You have moved that to the Commerce Department's commodity control list. Why doesn't the State Department have a continued interest in this? What is the logic there?

Mr. WALLERSTEIN. The State Department does have a continuing interest in it, and the continuing interest of the State Department would be in those applications of both of those technologies which are for military systems. Those remain controlled under the International Traffic in Arms regulations.

Mr. HUNTER. But the State Department has a veto on the sale if it is under the State Department's munitions list; right?

Mr. WALLERSTEIN. Yes.

Mr. HUNTER. They have lost that veto power?

Mr. WALLERSTEIN. Only with respect to commercial applications of the technology.

Mr. HUNTER. But they make the determination as to whether or not it is a commercial application or DOD application or a commercial application or a commercial application in disguise, which they have regularly done.

Mr. WALLERSTEIN. The determination of which specific applications will be transferred is one which is currently being resolved interagency at the present time and that will be clarified in the near future. I might also note that under the President's executive order, all of the agencies of the Government, including the Department of State and Department of Defense, now have the opportunity to review each individual license application.

Mr. HUNTER. Let's go back. There is a difference between reviewing something and having the ability to veto the sale. The State Department in the past has had the ability to veto the sale of this jet engine hot-section technology. In the past, they have vetoed the sale; haven't they?

Mr. WALLERSTEIN. In certain applications, yes.

Mr. HUNTER. And that was made because somebody in the State Department analyzed those applications as being DOD applications; right? Defense applications?

Mr. WALLERSTEIN. Correct. Military applications.

Mr. HUNTER. Why doesn't it make common sense to maintain that same analytical ability by retaining the hot-section technology where it has been in the past and where presumably administration officials had made rational decisions?

Mr. WALLERSTEIN. Because in the case of both of these technologies you have very substantial commercial applications; that is where there is not a military——

Mr. HUNTER. Why can't the State Department be trusted to determine what is commercial and what is defense?

Mr. WALLERSTEIN. The point is that what you wound up with was in fact a dual-licensing process that industry was forced to go through, that is to obtain both a munitions license and dual-use license for effectively the same technology. This added cost, delay and often resulted in lost sales.

Mr. HUNTER. So what you are saying is that lost sales has been an element here?

Mr. WALLERSTEIN. We have two major engine manufacturers in the United States. They compete with other engine manufacturers. The cost of commercial engines has soared to astronomical levels. It is in the interest of DOD, I might note, to keep these engine manufacturers viable and because we have accomplished this transfer with no diminution in the control and with full transparency to all the agencies, we felt this was entirely appropriate and will not result in damage to international security.

Mr. HUNTER. This is an illustration of what I talked about earlier, and that is that when there is a struggle—and there is a struggle. We can sit in the committee and pretend that these agen-

cies work hand-in-glove. There actually is a struggle. There is often a disagreement.

Typically, the Commerce Department wants to sell things that the State Department doesn't want to sell. They have more of a salesman's point of view with respect to that, and they are more sensitive to the commercial, to the industrial base problems you just talked about.

Now, by taking away the right of the State Department to veto this sale on the basis that there is a national security problem, we have allowed the salesman of the administration, let's do it or somebody else will do it, to now have the controlling hand. The Commerce Department now controls whether or not those items will be sold.

If a person in the State Department says I think that these hot sections are really going to be used in a military application, he can't stop the sale. He can call up and register his opinion.

Mr. WALLERSTEIN. That is not correct.

Mr. HUNTER. Can he stop the sale?

Mr. WALLERSTEIN. Yes.

Mr. HUNTER. How does he do that?

Mr. WALLERSTEIN. There are two ways; through the commodity jurisdiction process if it can be demonstrated that the proposed sale is a military application, then it would fall under the jurisdiction of the Department of State.

Mr. HUNTER. Who is the arbiter of who has jurisdiction?

Mr. WALLERSTEIN. In fact, through the jurisdiction process the Department of State is the final arbiter.

Mr. HUNTER. So the Department of State under this transfer of jurisdiction still has veto power.

Mr. WALLERSTEIN. All agencies have veto, including the DOD, because under the new executive order and the special application that has been arranged for these two technologies, which is entirely different than the process that is used under normal procedures, any of the agencies involved can veto a proposed sale, that is, can vote against it at the lowest level of review.

Mr. HUNTER. I am not talking about voting against it. I am talking about stopping it and having veto power.

Mr. WALLERSTEIN. I am saying the same thing.

Mr. HUNTER. What has the Department of Defense said with respect to these hot sections?

Mr. WALLERSTEIN. That we acknowledge that there are commercial applications for these hot sections that do not involve military systems. We have also noted that these technologies are all initially derivative of military engines, but that at some point the direct lineage to the military engine precursor is lost, that they become commercial applications.

As I said, we also have recognized the importance of maintaining a viable jet engine industry in the United States as being important to the defense industrial base.

Mr. HUNTER. Did the State Department complain about this transfer of jurisdiction? Did they want to keep it?

Mr. Einhorn, what do you say?

Mr. WALLERSTEIN. It has been a cooperative decision.

Mr. HUNTER. Will the cooperative, Mr. Einhorn, speak on this issue?

Mr. EINHORN. I wouldn't quarrel with Mr. Wallerstein's characterization. It was a collegial lengthy discussion process.

Mr. HUNTER. That is what I am afraid of.

Stealth coating. The Commerce Department in 1994 licensed for export stealth coating that could have been used to defeat the Patriot antimissile system. What happened there? Was that a case of zealots exaggerating what this was, or was it a case of a mistake, or should it go forward?

Mr. WALLERSTEIN. In fact, we have testified previously on this subject. This was, as I noted in my opening statement, an example of a case where the DOD properly should have had the right to review this particular license decision and did not.

We have modified and resolved that problem, again by the President's Executive order which now gives all agencies of the government the right to review every single license case that comes to, in this case, the Department of Commerce.

Mr. HUNTER. Did the stealth coating get delivered?

Mr. WALLERSTEIN. To my knowledge, it did not. It was stopped and I believe there is a GAO report on the subject.

Mr. HUNTER. I think we requested a GAO report on this. I understand it wasn't stopped until the sale or the proposed sale, if it was stopped, that the proposed sale was publicized in the newspapers.

If the gentleman wants to talk, too, that is fine.

Mr. WALLERSTEIN. This is a member of my staff from the Defense Technology Security Administration. I am advised that they will—one of the licenses was approved. This was we believe a mistake. We were never given the opportunity to review this.

Mr. HUNTER. That is one of my points here when you talk about the jurisdiction and the ability of other agencies that aren't the primary agency to review things. Knowledge is everything. We had literally in the case of Saddam Hussein and other Middle East nations, we had one instance where an Admiral got to the airport in time to stop something that had been happily shipped off by Commerce, and was able to stop the airplane before it left the airport. DOD didn't stop that sale of stealth coatings because they didn't catch it in time. It was a mistake; right?

Mr. WALLERSTEIN. We didn't know about it.

Mr. HUNTER. On jurisdiction, I know, for example, on the hot sections of these aircraft, to go back, that the State Department was really concerned about that, they are really tough on it. One of the major lobbying efforts by the multinational companies, by our aircraft companies, which I like and respect and employ a lot of people, they lobbied to pull that away from the State Department because they thought they were too restrictive on the sales.

If you take primary jurisdiction away from one department and give it to another, maybe that department can go screaming to the White House and say, Mr. President, Commerce is about to give away the jewels. But if you are not able to review on a case-by-case basis and on a daily basis and sometimes an intricate basis of what is being transferred, if you don't know exactly what is being transferred, you never have the opportunity to do what I am talking about, so scrutiny is very important.

Mr. WALLERSTEIN. I must repeat for the record that we do have the opportunity to review every single license case now under the President's new Executive order, and we are doing so, and we have yielded absolutely no authority in that regard.

Mr. HUNTER. Let's go back to the hot section. You said there was wasted time in this dual-licensing. If the licensing is a function of the review; that is, State looked at it and then Commerce looked at it, if you agree that scrutiny is important and there is nothing wrong with Commerce having scrutiny, then why not just keep the hot sections under State where they make the reviews and you make the dual-licensing and maybe the dual licensing keeps some of this stuff from going to the wrong place.

In other words, you can't say in one breath review is onerous so we want to make it a single license instead of a dual license, but on the other hand, say it is absolutely appropriate that this other agency participate in the review, you can't have it both ways. If they are participating in the review now, why did you have to change that?

Mr. WALLERSTEIN. We did this to rationalize and streamline the process to help keep U.S. companies competitive.

Mr. HUNTER. That means, a streamlined process means you are not going to have as much time to review because the aircraft companies squeal like heck when they say 20 days have gone by, 30 days have gone by and the French are moving in to make the sale and we have to have the sale. When you streamline a process you take away review time and sometimes review time has some importance. Do you agree?

Mr. WALLERSTEIN. I do agree that we need an appropriate amount of review time, but the disciplines that we have established we have imposed on ourselves as part of the Executive order imposes on all the agencies of Government specific time limits on reviews in any case for all licenses, not just those applied to hot sections.

Mr. HUNTER. So the President now has a drop-dead date when you can't review stuff any longer?

Mr. WALLERSTEIN. I would note respectfully, sir, it is Congress which has also been screaming for streamlining the review process.

Mr. HUNTER. It ain't me. I think you have to review this stuff as long as it takes, and I think you have to let DOD, the people who know about defense systems and some of the folks in State be able to review these things. We saw the Nile River disease go to Iraq and some Commerce guy had written on the outside of the package, "we can trust these guys," in longhand. We have seen a lot of mistakes. We shouldn't have to have guys rushing to the airport to stop shipments. So the President has come up—we have a drop-dead date that is to some degree a function of legislation.

Thank you, Mr. Chairman, for the ability to go through, walk through some of these specific issues, and we do need to get a briefing, a classified briefing on the supercomputers.

Mr. WALLERSTEIN. I understand.

Mr. HUNTER. And I appreciate you being with us today, Mr. Einhorn. Thank you, sir.

Mr. WELDON. Thank you.

I want to keep the hearing alive at least until Mr. Taylor comes back in case he has a question he would like to ask.

Did you want to make a comment?

Mr. EINHORN. If I could just make a remark. There was a story today in the newspaper about action by Senate appropriators and joining House appropriators in agreeing on a level of support for the Korean Energy Development Organization [KEDO], and it was an agreement on a level of $13 million, well below the $25 million requested by the administration. If you give me the opportunity, I just want to say a word about KEDO and why it is so important to fund it fully.

We haven't discussed very much this morning the agreed framework that hopefully has set aside and resolved the question of North Korea's nuclear capabilities, but the KEDO organization has turned out to be a very effective means of implementing this agreed framework.

You have been briefed earlier and know that the North Koreans have done a good job in meeting their end of this bargain. And it is very important if we want to sustain this agreement and prevent North Korea from achieving this nuclear capability that we give KEDO the resources to do its job. That means our living up to our end of the commitment as well and it means our being able to provide the heavy fuel oil to the North Koreans that we committed to do.

What they did, they went beyond the Non-Proliferation Treaty [NPT] in eliminating their entire nuclear infrastructure, including a number of reactors that provided heat and electricity to local populations. And in exchange, we said that we would provide heavy oil to help substitute for that loss.

Now, funding at well below the requested level is going to put us in a very difficult situation to fulfill this commitment, and it could well lead to the unraveling of what has been a very important accomplishment, and not just in the nuclear area.

An issue we haven't discussed today is the question of missile proliferation by North Korea. There have been a number of instances where we have been concerned by North Korean missile exports as well as by its indigenous programs. We talked about the Taepo-Dong series of missiles. Under the agreed framework, the North Koreans have agreed to sit down with us and negotiate over their missile exports and capabilities. And if we are to be able to pursue those negotiations and hopefully to achieve restraints on North Korean missile capabilities, we are going to have to live up to our end of the bargain in the agreed framework. That is why we think it would be penny-wise, pound-foolish to shortchange KEDO and to provide less than the $25 million that we have requested.

So for the two of you, whom I know are very interested in nonproliferation, very committed to nonproliferation, I just wanted to flag this issue. And you should know this is a very good investment in nonproliferation, and I hope that when both sides sit down in conference to look over this request, it will be sympathetically considered.

Thank you.

Mr. WELDON. I appreciate those comments.

Let me get back to China. We have hinted around the edge; let me ask the question bluntly. Is the administration considering offering China the opportunity to join the Missile Test Control Regime [MTCR] as a partner of our country?

Mr. EINHORN. I forget if it was you or Mr. Hunter that indicated earlier that we were offering to China and North Korea membership in the MTCR. We would like eventually for both China and North Korea to become eligible, to meet the requirements to join the MTCR, and so we are pushing both the Chinese and the North Koreans to adopt the kind of constraints that would make them eligible.

At the moment, we don't believe that they are qualified and they need more work both in terms of strengthening their export control systems, in terms of avoiding some questionable missile technology transfer activities they are engaged in. In the question of North Korea, it has to come into full compliance with its Non-Proliferation Treaty [NPT] obligations, which it is not in compliance with at the moment. So, yes, eventually we would like these countries to qualify because they are very significant providers and suppliers of missile technology, but we have not offered them membership at this stage. They are not yet eligible.

Mr. WELDON. For the record, if China would become an MTCR adherent either by full partnership or by a memorandum of understanding, would China be subject to sanctions under the Arms Control Export Act or the Export Administration Act?

Mr. EINHORN. Under the act as currently written, if a country joins the MTCR, it is no longer subject to missile sanctions.

Mr. WELDON. That is my concern. I would just encourage you to proceed slowly. This administration is pushing hard on Most Favored Nation [MFN] for China, and this goes to both sides of the aisle and you heard the comments by our friends on the Democratic side earlier as well as the Republican side; I think this administration has serious problems relative to what China is doing in the proliferation area before you are going to get a positive vote out of the House of Representatives.

Whether you do it in a public setting or a private setting—you are probably going to have to come in privately and brief Members, I would ask you to carry the word back that it better be done quickly. There are a lot of open questions here that need to be resolved. I can tell you, the sentiment among the Members is growing stronger by the day in opposition to even considering this. You have serious issues that many in the Congress feel are not being addressed.

We talked about the M–11 issue. I know that is not something that the administration wants to talk about openly. Members are talking about it. If we eventually verify that Pakistan has the operational capability, what do you think India's response is going to be?

Mr. EINHORN. I don't want to discuss the term "operational capability" because it is fraught with all kinds of interpretations and that is in part what is at issue in the current intelligence community analysis. But let me just say, it continues to be our view, and this is not just the State Department, this is the administration, that neither Pakistan nor India has deployed ballistic missiles. We

know both have active missile development programs, but to this date we do not believe those missiles are deployed. But we are concerned that if either side were to cross some threshold, this could lead to a response from the other and the result would be a loss of stability, and it would be particularly worrisome because we believe both of these countries have nuclear weapons programs and are capable of fielding nuclear weapons in a relatively short period of time.

Mr. WELDON. Let me ask one final question, and I have a number of others, but time is running out and we have a number of other commitments and then I will turn it over to Mr. Hunter.

I assume you are both familiar with an internal document that was developed in Russia last fall by Anton Surikov that was briefed to Pavel Grachev, the former defense minister and Mr. Kolesnikov the Chief of Operations for the Russian military.

Are you both familiar with the Surikov document?

Mr. EINHORN. If I am, I don't know it by that name, Mr. Chairman.

Mr. WALLERSTEIN. I would have a similar response.

Mr. WELDON. Members of Congress are familiar with it. We circulated it around. The intelligence community is very familiar with it. I am surprised neither of you are familiar with it. It sums up the concern that many of us have, and I am not an alarmist when it comes to Russia. I fully believe that Yeltsin is in command of the country as much as anybody could be right now, although there is a ton of instability.

I agree with Mr. Blair from Brookings who makes the case that Russia probably is as destabilized now in terms of its control of nuclear weapons as it has ever been in its history, even as a Soviet Nation with 15 separate republics. But what is troublesome is that here is a 28-page internal document—a 17-page document that was published in October of 1995.

I gave members of this committee and members of the Foreign Affairs Committee a copy of this document when we had it translated several months ago. It was prepared for the highest military leadership in Russia. And some of the items in here from the standpoint of proliferation are very troublesome.

We want to be careful that we are calling Russia in every possible instance. I am not saying that this is the established policy of Russia's military. But what I am saying is there are some in the military who are thinking along these lines to the point where they are putting it in writing and briefing the most senior leaders in the Russian military.

Besides calling the Baltic States rogue nations who are controlled by Mafia-influenced leadership, which in itself is an outrage, they go on to talk about the possibility of Russia being persistently driven into a corner by some of our actions, and some of the actions he talks about is our supposed exploiting of their resources, the oil deals that our companies are doing in the Caspian Sea area and the efforts to expand North Atlantic Treaty Organization [NATO] which this administration and many in the Congress support.

He then says, it will be possible to undertake to sell military nuclear and missile technologies to such countries as Iran and Iraq and to Algeria after Islamic forces arrive in power there. Moreover,

Russia's direct military alliance with some of the countries mentioned also should not be excluded, above all, with Iran, but in the framework of which a Russian troop contingent and tactical nuclear weapons could be stationed on the shores of the Persian Gulf and the Straits of Hormuz.

This is not some rightwing document that we dug up in America from some think tank. This is an internal Russian document that was prepared by the Institute for Defense Analysis and Defense Studies in Russia, briefed to the highest levels, which is an option for the Russian military leadership.

I have raised this issue with the Russians on several occasions when I have had the opportunity, most recently in May when I was there with Senator Bradley. But the point is that we have to set as our priority, and the concern you heard me express, I am not convinced that we are as open and candid with the Russians especially in terms of treaty violations as we need to be and should be, and my impression is that they read that for what it is, that they read that as though we are not going to call them on these treaty violations. And we are sending a terribly wrong signal if that is the case.

We have to send a signal to people like Surikov that we will never tolerate that kind of an exchange, that kind of a linkage. He says, "It is obvious that such countries as Iran, Iraq, and North Korea are not Russia's enemies, that any kind of cooperation between Russia and the United States hardly will be possible at all under conditions of the approaching cold peace connected with the upcoming NATO bloc expansion."

We know NATO is going to be expanded. The administration is for it, Congress is for it. We know it is going to happen. So we need to understand that there are many in Russia internally who see the proliferation of their nuclear technology and missile capability as a desired goal and are actively pursuing that, and that we have to acknowledge up front that we are going to call them every possible opportunity we can get and if it means we have to embarrass Boris Yeltsin, so be it.

In the discussions I have had with the Russians on this issue, I want the Russians to act that way with us. If they see that we are doing something that is unacceptable, I want them to call me on that. I am a big boy. I am willing to go to our military or the State Department when we do things that are wrong, like 2 years ago when we had a hearing on the problem of nuclear waste disposal and one of our Navy witnesses was criticizing the Russians for not being candid as to the status of the *Comsmolesk*, which is on the bottom of the ocean, and the potential for that affecting the environment. I said that is wrong, and we should pursue the Russians.

I said, let me ask you about the *Scorpion*. He said I can't talk about that, Congressman, that is classified. We stated our outrage. If we are going to call the Russians, then we have to call our own military when we have instances of potential for environmental contamination from problems we might have. As a result of that hearing we had the Navy release film footage of both submarines to ABC News and they ran it on national TV.

Maybe I am wrong, and maybe over a period of time you can prove me wrong. I have the gut instinct that in the end Talbott's end result in terms of policy priorities in terms of Russia, which I agree with, is not allowing us the opportunity to candidly confront the Russians when they do things that we and they know are wrong. And I think that is in our worst interest and also in Russia's worst interest.

Mr. EINHORN. Mr. Chairman, we shouldn't pull our punches and we don't pull our punches privately. When we have a problem, when we have intelligence information suggesting they are doing something wrong, we raise it with them very forcefully and often will get positive results.

Let me give you an example where the result is not yet as positive as we would like in the area of biological weapons. We had information for a long time that the Soviet Union, not Russia, was pursuing an illegal biological weapons program, contrary to its obligations under the Biological Weapons Convention. We raised it persistently at all levels of the Soviet Government and finally broke through convincingly with President Yeltsin.

In 1992, President Yeltsin publicly declared what was an extraordinary admission; that this illegal program was actually being carried out. And we believe that the Russian leadership is really determined to put a complete end to this program. And we have been trying to work with them through discussions to make sure that this is fully terminated.

We have tried to organize visits to military facilities where we are concerned that such activities might be taking place, et cetera. We haven't yet finalized those arrangements, but we plug at it. Some of the issues you referred to earlier about the smuggling of the gyroscopes, the guidance equipment to Iraq, and so forth, we raised with them. We have a mature relationship with the Russians, we talk to them very candidly about these issues and often we get positive results.

Often these issues are best dealt with out of the public limelight because we are more likely to get the Russians to investigate conscientiously and give us frank answers. But I can assure you when we get this kind of problem, we pursue it.

Mr. WELDON. I appreciate that and I appreciate that much of this needs to be done behind the scenes. I am also troubled when anyone, whether he or she be a Republican or a Democrat, or whoever it might be while taking aggressive actions privately tries to create a misperception that all perhaps is more well than perhaps it really is.

At a hearing we had on Tuesday where we had General Linhard who spent 8 years as a chief missile targeting expert for the Air Force, we talked about the issue of whether or not we can verify that offensive Russian strategic missiles are no longer pointed at the United States. The perception the people have in this country is that this President has said twice in his State of the Union speeches that we can sleep well at night, the American children can, because no longer are Russian offensive missiles pointed at United States children.

This chief missile targeting expert who was here as a two- or three-star Air Force General, when I asked him how long does it

take to target an offensive missile, he said less than a minute. When I asked do we have a way of verifying that in fact the Russian missiles are not pointed at us, he said no; we take their word for it. What I am saying is, neither side in this country should take the extreme in creating the wrong impressions with the American people about reality. I don't want to alarm the American people into thinking that we face the prospect for an all-out nuclear attack by the Russians, because I don't believe that. That is the farthest thing from concern in my mind. But on the other hand, I don't want someone creating the misperception that since the Soviet Union broke up all is well, there is no more proliferation, there is no more concern with offensive nuclear weapons, there is no more concern because Russia is no longer a threat to the country. We know that is wrong, too.

My problem is that that drives our ability to be honest and candid with the American people on how we can respond to the threat that is there. I don't want to respond to a threat that is not there or create a threat. But if in fact there are things that we need to know about that we want to be able to deal with, then we want to know about them and be able to deal with that in a realistic way. That is what is driving much of the confrontation between the administration and the Congress over missile defense, basically the threat.

I will ask in closing, the reports that I have read, I read in a press account that in 1995 Russia had an 80 percent increase in its arms exporting. They now export over $3 billion worth of arms, and it has become a major source of economic stability in the country. Do you agree?

Mr. EINHORN. I don't have the figures.

Mr. WALLERSTEIN. I don't either, but I know that there was a slight increase in the last year. This followed a very, very substantial downturn in Russian export of conventional arms.

I might note that another example of where we have talked very frankly to the Russian Government had to do with their entry into the Wassenaar Arrangement, where in fact we blocked their entry for quite some time until we could reach an understanding with respect to their export of conventional arms to Iran, and eventually did reach agreement with them.

They look to export arms, as we do as well, and we continue to talk to them about those circumstances in which such arms exports would be potentially destabilizing. That is one of the central purposes of this new Wassenaar Arrangement.

Mr. WELDON. I agree we do export arms, but I don't think the Russians have any degree of control over their exporting operations that we have and the kinds of review that we have in place in terms of our exporting operations. I visited last January the leadership of Rosvoororizhenie, and they for an hour gave me a full brief and said we will sell you anything you want, and they brought out glossy brochures, and videos, whatever you want to buy, it is for sale.

I am not saying they don't have a right to sell some of their arms, but the report that I saw said there has been an 80 percent increase. That is fairly significant.

I am concerned with whether or not the degree of control in terms of what they are doing is in place. I am not going to ask you about the SS–25. That is a major concern of mine. We will be doing is a separate hearing on that issue and the variant of the SS–25 because I think that presents a real threat to us if a rogue nation gets one of those mobile-launched systems.

I appreciate the candor of both of you in coming forward.

Mr. Einhorn, I have met with you privately and I understand the difficulties that you have to deal with in terms of the negotiations with other countries. But I can tell you that I am just not satisfied personally as to the level, and that is perhaps going to take more education of myself as to what we are doing and perhaps it is going to take more on the part of the administration to convince me that I am wrong in terms of my lack of appreciation of the efforts that you are undertaking, but I will take these efforts in the spirit of candor and wanting to have the same objective of this administration, and that is a peaceful coexistence where Russia can succeed and where we can succeed and not have to spend massive amounts on armaments that we don't need to spend.

I am not confident that I can say in my own opinion that I feel that the administration is fully following through on the arms control agreements that are currently in place, and that troubles me. And it is why I am going to continue to ask questions, and I know my colleagues on both sides of the aisle feel the same way. We hear the notion about Russia being so strapped economically. We see a major installation being developed in the Urals.

I guess neither of you are prepared to talk about the Yamantau Mountain and what that means. It certainly is not being built as an amusement park. With the kind of size of this complex and with the hardening capability it will have it presents another intriguing thing that we have to uncover. We had a classified briefing on this last week and we got no answers. We have been studying it for 10 years and still don't know what Yamantau Mountain is all about.

Mr. EINHORN. I have no comment on that mysterious facility, just to say that we do appreciate the obvious time and attention that you personally have given to these issues. We want to engage with you as often as you can take it on all of these issues. We are prepared to come up here to your office, to brief you, to other Members of your committee and staff, to be responsive to your concerns and your interests.

We do have some differences of perspective. We would like further opportunity to try to convince you that the approach we are taking is a sound one, and where we have differences just to discuss them and understand them fully. But we would welcome the opportunity to do that, as we welcome the opportunity to testify today.

Mr. WELDON. Thank you.

Since neither of you are familiar with the Surikov document, I would ask you each to go back and for the record provide me the appropriate response by both State and DOD as to what they think the significance if any is of the Surikov document, since it has been reported in the Russian media first and the American media second, and tell me from a proliferation standpoint, since that is what this document ultimately refers to, the potential impact.

[The information referred to follows:]

QUESTION FOR THE RECORD FROM REPRESENTATIVE WELDON

What is the significance of the "Surikov Document" and what is its potential impact, from a proliferation standpoint?

Answer (This is a joint DOD/State response.) Several months ago, Surikov and Valeriy Dementyev co-authored an article advocating a restructuring of the Russian armed forces, entitled, "The Army, Reform, Security. Conceptual Provisions of Reform of the Russian Federation Armed Forces." In this article Surikov outlines his perceptions of a strategic threat to Russia from the U.S. and NATO. He proposes changes to Russian defense and other structures to deal with that perceived threat.

In today's pluralist Russia, individuals and groups are often outspoken in expressing their views. Surikov is a private citizen, who heads a private defense-oriented think tank, the Institute of Defense Studies (INOBIS). Views expressed by Surikov in his writings and statements to the press are those of a private citizen.

We have a close dialogue on security issues with the Government of the Russian Federation; Surikov does not reflect the views of the Government. Russia remains committed to working with the U.S. to maintain our close cooperation on security issues, including arms control and the proliferation of weapons of mass destruction.

Mr. WELDON. I don't see Mr. Hunter returning, so I will conclude this hearing.

Thank you both again. I apologize to you, Dr. Wallerstein, for misstating your name.

Thank you both. You were very kind to sit through this period of time.

The hearing now stands adjourned.

[Whereupon, at 2:20 p.m., the subcommittee was adjourned.]

JOINT HEARING ON BALLISTIC MISSILE DEFENSE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATIONAL SECURITY,
MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE,
JOINT WITH MILITARY PROCUREMENT SUBCOMMITTEE,
Washington, DC, Friday, September 27, 1996.

The subcommittees met jointly, pursuant to notice, at 10:05 a.m., in room 2118, Rayburn House Office Building, Hon. Curt Weldon (chairman of the Subcommittee on Military Research and Development) presiding.

OPENING STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE FROM PENNSYLVANIA, CHAIRMAN, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. WELDON. The Subcommittees of Research and Development and Military Acquisition will come to order. The Military Research and Development and Military Procurement Subcommittees meet jointly this morning to receive testimony from distinguished government and outside experts on U.S. ballistic missile defense plans, policies, and programs. This hearing is the latest in a series intended to shed light on this administration's response, which in my opinion has been inadequate, as I have stated publicly, to the burgeoning threat posed by missiles armed with weapons of mass destruction.

Over the course of the last 2 years, these two committees jointly and the R&D committee separately have held in total over 16 formal hearings and a number of informal briefings and closed sessions for members to deal with the issue of missile defense. This was in marked contrast to the previous 2 years where we did not have one hearing in the R&D subcommittee on the issue of missile defense, and I pledge that next year, and I think my colleague and friend, Mr. Spratt, would agree that we plan to continue a series of meetings regardless of which party is in control or who may be chairing the subcommittee dealing with this vital issue of national importance.

We are pleased to have two panels of witnesses this morning. The first panel before us now consists of Dr. Paul Kaminski, Under Secretary of Defense for Acquisition and Technology, and Gen. Joseph Ralston, U.S. Air Force, Vice Chairman of the Joint Chiefs of Staff. We appreciate the presence of both of you here today and look forward to your testimony.

We are extremely privileged to have another distinguished senior military officer with us today, I guess for the first time, and I would like to yield to the gentlewoman from California, Ms. Har-

man, for the purpose of introducing him since he hails from her district.

Ms. Harman.

Ms. HARMAN. Thank you, Mr. Chairman. I just want to add to your remarks that the interest in a robust ballistic missile defense program is a bipartisan interest. I certainly share it, and I pledge to work with this subcommittee vigorously in the next Congress to make sure that we provide the oversight and leadership that we need to.

I am delighted to introduce a close friend, Lt. Gen. Lester L. Lyles, Les Lyles, who most recently has served as commander of the Los Angeles Air Force Base in my district in California. I came to know Les when he came to L.A., and he has provided extraordinary leadership over the Space and Missiles Command for the last 2 years. I was distraught when I heard that he was being, "promoted" to this new job as Director of the Ballistic Missile Defense Organization, and made clear my view that he would be a major loss to the Space and Missiles Command but obviously a major gain to the Defense Department.

He has extraordinary credentials in this line of work starting in 1968 after he completed the Air Force Reserve Officers Training Corps Program as a distinguished graduate. He has served in a variety of assignments including program element monitor of the Short Range Attack Missile, Headquarters U.S. Air Force in Washington, and then special assistant and aide-de-camp to the commander of the Air Force Systems Command.

In 1981, he returned to Wright-Patterson Air Force Base, OH, as Avionics Division Chief in the F–16 Systems Program Office. I think Mr. Hunter will be interested in that. Served as Director of Tactical Aircraft Systems at the Air Force Systems Command Headquarters and Director of the Medium Launch Vehicles Program and Space Launch Systems Offices.

He became System Command Headquarters Assistant Deputy Chief of Staff for Requirements in 1989 and Deputy Chief of Staff for Requirements in 1990. In 1992, he became vice commander of Ogden Air Logistics Center, Hill Air Force Base, UT; then commander of the Center. And then, as I mentioned, assigned to command the Headquarters Space and Missiles System Center, Air Force Materiel Command, Los Angeles Air Force Base. So it is a wonderful résumé, but more important a wonderful human being that we are welcoming home to Washington, which is where he and his wife Mina hail from, and I would just like to close with this comment. When Les was leaving the Air Force base, there was a fancy ceremony, and I was there, and I wanted to bring him two presents. One of them my staff let me bring, and that was a little potted palm tree. The other one my staff forbade me from bringing, but I would like to tell you that it was going to be a jar of shark repellant. [Laughter.]

Ms. HARMAN. With that, I yield back. Thank you very much, Mr. Chairman.

Mr. WELDON. That shark repellant must be for those aggressive Democrats. Is that what it is for? [Laughter.]

I thank the gentlelady for that outstanding opening comment and introduction of someone who I have come to know. General

Lyles, welcome. We appreciate you being here, and you are a man of integrity and honor and have served this country with great distinction, and I am absolutely confident that you will continue the legacy of Mal O'Neill and deal with us in a very frank and candid manner which is all we can ask of you in doing a job. Thank you for being here today and welcome.

General LYLES. Thank you, Congressman.

Mr. WELDON. There is someone else I would like to introduce before I continue with my opening statement. As you know, over the past 2 years besides our aggressiveness in understanding both the threat and the response to the need for missile defenses in this country, I have been equally aggressive along with my chairman and colleagues on both sides in supporting an aggressive new relationship with Russia and the former Soviet states. To that end, we have reached out in a positive way in assisting them in their energy development, their environmental problems.

Last week, the chairman and I met with the chairman of the Duma Defense Committee and his vice chairman for 2 hours and the senior leadership of the Duma in the veterans affairs area, and we have agreed to a working formal relationship that will have us meet twice a year working with people like Keith Payne who will be one of our witnesses today. We have reached out to try to allow each side to understand the other's perspectives, and I am pleased to welcome with us today and would ask him also to rise to be recognized, Dr. Sergei Kortunov. Sergei, welcome to our hearing. Sergei is with us today. He is the head of the Department of International Affairs and Strategic Assessment of the Russian Defense Council. He is one of Boris Yeltsin's key advisers on military policy, missile defense, and also is an outstanding leader in terms of cooperation with us. I have been in many sessions with Sergei and welcome you to our hearing today. Thank you for being here.

Now back to reality, Dr. Kaminski. Before hearing from other members and other witnesses, I would like to take a moment to point out what I consider to be the real and growing mismatch between the administration's stated purpose in terms of support of missile defense and its unfortunate, in my opinion, record of performance in this area. Regarding national missile defense, the administration's "spin," and I say "spin" in quotes, is that Congress and the White House really are not that far apart. The differences are modest at best. "Congress supports National Missile Defense [NMD], and so do we" is the public diplomacy line that we have heard time and again.

But I would ask you to consider the following: the President vetoed the defense authorization bill last year because it called for deploying an affordable, operationally effective, ground-based NMD system by 2003. We went to great lengths to make sure that that bill so that it would be treaty compliant, would be single site, covering all 50 States, and would be relatively low cost. In spite of that provision, the President vetoed the bill. Two weeks after the President signed the bill without that provision in it, I scheduled a hearing, which unfortunately the witnesses were denied to attend, where we were going to have three generals of our military, General Linhard from the Air Force, General Garner from the Army and General O'Neill, come in and testify to the exact opposite

of that statement, that, in fact, we have the capability to build today a single site, treaty-compliant, 50 State coverage, low-cost, NMD system.

The reason why obviously they could not come in is because they were going to directly contradict the veto message for the 1996 Defense Authorization Act. That to me was extremely unfortunate and was one of the low points in the two years that I have served as chairman of the R&D subcommittee.

The President threatened to veto the legislation, the Defend America Act, because it called for actual deployment of an NMD system by a date certain. In doing so, the President relied on intelligence threat assessment that was released in a politicized manner and we have gone over that repeatedly in this committee, and that has been roundly criticized by the General Accounting Office and the President's first Director of Central Intelligence, Mr. Woolsey.

And furthermore, the administration has attempted to shut the door on possible future changes to the ABM Treaty by adding up the 13 new signatories from the former Soviet Union, each of which will wield a veto over United States missile defenses. When I had the occasion this year to visit Geneva and sit across from General Kortunov, the chief Russian negotiator, on those demarcation issues, and looked him squarely in the face sitting along side of Stanley Riveles, our chief negotiator, I asked the question, "General, why are you so adamant in bringing in other former Soviet states as equal signatories to the ABM Treaty when, in fact, we all understand that Russia is the only remaining country that has the capability of deploying and using the strategic long-range offensive weapons covered by the treaty?" And he said, "Congressman, you're asking the wrong person that question. You should be asking that of Mr. Riveles."

The point is that it was not in the eyes of the Russians questioning me their priority to expand the treaty to cover all of the former Soviet states. Rather it was more the impetus on our side. I find that extremely disturbing. I find it especially disturbing when the administration will not agree to allow the Senate to play its proper role in advising, consenting and passing judgment on the terms of what, in fact, is a substantive change to the Anti-Ballistic Missile [ABM] Treaty.

Why am I so concerned about this issue. It is because as we work hand-in-hand with Russia and working to tear apart perhaps the feelings of distrust, it is important that we be able together jointly to modify and perhaps amend or perhaps even replace the Anti-Ballistic Missile [ABM] Treaty. And to have to deal with other equal signatory nations, I think just presents additional stumbling blocks that need not be placed in the way, and for that reason I think that has, in fact, been a terribly misguided judgment and action on the part of this administration.

These are not actions in my mind of support of missile defense. These are the actions in my opinion of an administration diametrically opposed to building missile defenses for the American people and committing to actual deployment. The administration touts its own NMD plan, the so-called deployment readiness program, of evidence of its commitment to defending America, but a closer look re-

veals that few, if any, of the pieces of a successful NMD program are in place.

For example, two years ago, Ballistic Missile Defense Organization [BMDO] informed this committee that at least $800 million per year was needed to fully fund NMD research and development, $800 million. Yet the department plans to spend four to $500 million for NMD through the Future Years Defense Program. This amount is insufficient to perform the necessary research and development, using the administration's own numbers, much less the production and actual fielding of an NMD system.

Furthermore, this comes on top of the 80-percent cut in the NMD budget inflicted by the administration upon assuming office. What was a well-funded acquisition program was decimated and turned into an unfocused technology, almost a hobby-shop, program.

DOD has few of the contractual elements in place to actually field an NMD system. Contracts have yet to be let for a lead systems integrator or for development and production of a ground-based interceptor. In fact, the administration refused to open contract proposals from industry on the GBI which resulted in millions of dollars being wasted and the government deriving no benefit from the effort. And the Department of Defense [DOD] has yet to institute an appropriate organizational structure for managing NMD system development. Based on these considerations, I find it hard to conclude that the administration is truly serious about developing and deploying an effective NMD system.

Let me turn briefly here to the issue of the administration's what I would call controversial efforts to strengthen the ABM Treaty. In a joint statement issued this past Monday, Secretary of State Christopher and Russian Foreign Minister Primakov announced they had reached agreement on demarcation of strategic and theater missile defenses. This agreement allegedly would allow lower velocity TMD systems such as PAC–3, Navy Lower Tier, and Theater High Altitude Area Defense System [THAAD], to be developed and deployed.

Some consider this a breakthrough. In fact, there are serious questions about this agreement. I think we will have at least these partially addressed today. Does it permit the full use of data derived from space-based sensors? And is that allocation just for a specific system or is it generic approval of any follow-on system that, in fact, we could, in fact, put into place? How does it affect Navy Upper Tier and other high velocity TMD systems? What concessions are we forced to make in order to gain the agreement? Or more importantly, why does the administration feel compelled to negotiate such agreements in the first place in line with the questions raised by Mr. Woolsey?

In fact, the United States is well within its rights to issue ABM Treaty compliance determinations unilaterally—a key point conceded by DOD witnesses in testimony before this committee earlier this year. I also question the administration's commitment to the constitutional principle of ensuring congressional oversight, and this gets to the heart of the Senate's approval of any changes to the ABM Treaty in terms of multinationalizing or lateralizing it. And as I said earlier, the administration has refused to submit the

agreement to multilateralize the ABM Treaty to the Congress for their consideration.

And finally I must add my disappointment in the ongoing effort to fund theater missile defenses. We went to great lengths over 1 year ago to put into place a piece of legislation that our staff worked aggressively on with the Ballistic Missile Defense Organization. Over a year ago, we put into that legislation, which passed on the House floor in May with a vote of 301, the largest vote I have seen in my 10 years in Congress, specific dates for the first UOES capability and actual deployment of a THAAD component.

Those dates were never questioned. I have asked Dr. Kaminski and the administration to provide for me on the record publicly any documentation or any statement that, in fact, questioned the dates that we had in our bill. They were never questioned publicly or privately contrary to what was put out by the public affairs office and the Pentagon. In the late negotiations that occurred in December when I was the last member here, as other members had gone home for the Christmas break, I sat in Senator Thurmond's office, and at length, with Trent Lott and Sam Nunn and Strom Thurmond and eventually bringing over Bob Bell, we addressed 20 specific language issues raised by the administration, and four specific policy issues, three of which we conceded on.

At no time was the issue of the dates for Theater Missile Defense raised with us as being a problem. The President vetoed the bill on National Missile Defense considerations. We took that out of the bill. At no time in the President's veto message were the dates for deployment of THAAD raised as an issue. At no time did the President ever issue a statement saying that this bill caused problems because it was not possible to deploy THAAD by the dates that this committee put in the very bill.

The President signed that bill into law with those very specific dates in it. That then became the law of the land. A week later we were told the administration was, in fact, reconfiguring the Missile Defense Program and were slipping the deployment dates of the first unit of THAAD from 2001 to 2006. This is in spite of the fact that General Luck, our theater commander, said he needs the THAAD as quickly as possible in South Korea. And this is in spite of the fact that in one of my recent visits to Huntsville, I have been told as of this date we can deploy THAAD much sooner than 2006 date.

I was also dismayed when in a conversation I had with Dr. Kaminski, we evidently had a miscommunication, possibly on my part, possibly I misunderstood the telephone call, because when the report was issued by the public affairs officer, I talked to Dr. Kaminski and said is it really a technical or a dollar problem, and I thought that Dr. Kaminski, I thought that you had said it was, in fact, the dollars, and I went public with that the same day in a letter to you and reinforced that, and a month later got your response saying, well, I was not quite right in that response.

But I would say to you that there is extreme frustration on the part of many Members in this Congress that words are not enough when it comes to commitment for missile defense, whether we are talking about a new joint program office that many of us could support if we felt that it was a sincere effort to deal with the issues

that are at hand or whether it is the issue of the demarcation and why we are in, fact, negotiating things that perhaps do not have to be dealt with in the ABM Treaty or whether it is, in fact, deployment dates for Theater Missile Defense, for Navy Lower and Upper Tier, priories that we have in a bipartisan way addressed in this institution in a bipartisan manner for the last several years.

Those are my frustrations, but I am here to listen to the perspective of the administration, and I am open for any comments that might, in fact, answer some of the issues that I have raised, and while I gave a rather long opening statement—I wanted to get some things off of my chest this morning. I have done that and will now turn to my good friend and colleague and chairman of the Military Procurement Committee, Mr. Hunter.

[The prepared statement of Mr. Weldon follows:]

OPENING STATEMENT OF REP. CURT WELDON
CHAIRMAN, R&D SUBCOMMITTEE
SEPTEMBER 27, 1996

The Subcommittees will come to order. The Military Research and Development and Military Procurement Subcommittees meet jointly this morning to receive testimony from distinguished Government and outside experts on U.S. ballistic missile defense (BMD) plans, policies, and programs. This hearing is the latest in a series intended to shed light on this Administration's inadequate response to the burgeoning threat posed by missiles armed with weapons of mass destruction.

We are pleased to have two panels of witnesses this morning. The first panel, before us now, consists of Paul Kaminski, Under Secretary of Defense for Acquisition and Technology, and General Joseph Ralston, U.S. Air Force, Vice Chairman of the Joint Chiefs of Staff. We appreciate your presence here today and look forward to your testimony.

We also are privileged to have another distinguished senior military officer with us today, and I'd like to yield to the gentlewoman from California, Mrs. Harman, for the purpose of introducing him. ...

Before hearing from other Members and our witnesses, I'd like to take a moment to point out what I consider the real and growing mismatch between the Administration's rhetoric in support of missile defense and its record of performance in this area.

Regarding National Missile Defense, the Administration's "spin" is that Congress and the White House really aren't that far apart; that the differences are modest at best. "Congress supports NMD, and so do we" is the public diplomacy line you hear.

But consider the following:

- The President vetoed the Defense Authorization Bill last year because it called for deploying an affordable, operationally-effective ground-based NMD system by 2003.

- The President threatened to veto legislation, the Defend America Act, because it, too, called for actual deployment of an NMD system by a date certain. In doing so, the President relied on an intelligence threat assessment that was released in a politicized manner, and that has been roundly criticized by the General Accounting Office and the President's first Director of Central Intelligence.

And, furthermore,

- The Administration has attempted to shut the door on possible, future changes to the ABM Treaty by adding up to 13 new signatories from the former Soviet Union—each of which will wield a veto over U.S. missile defenses.

These are not actions in support of missile defense. These are the actions of an Administration that is diametrically opposed to building effective defenses for the American people.

The Administration touts its own NMD plan, the so-called "Deployment Readiness" program, as evidence of its commitment to defending America. But a closer look reveals that *few, if any, of the pieces of a successful NMD program are in place*. For example:

- Two years ago, BMDO informed the Committee that at least $800 million per year was needed to fully fund NMD research and development. Yet, the Department's plans to spend $400-$500 million for NMD through the Future Years Defense Program. This amount is insufficient to perform the necessary research and development—much less the production and actual fielding—of an NMD system. Furthermore, this comes on top of the 80 percent cut in the NMD budget inflicted by the Administration upon assuming office. What was a well-funded acquisition program was decimated and turned into an unfocused, technology hobby-shop program.

- DOD also has few of the contractual elements in place to actually field an NMD system: Contracts have yet to be let for a Lead Systems Integrator or for development and production of a ground-based interceptor. In fact, the Administration refused to open contract proposals from industry on the GBI which resulted in millions of dollars being wasted and the Government deriving no benefit from this effort.

- And DOD has yet to institute an appropriate organizational structure for managing NMD system development.

Based on these considerations, I find it hard to conclude that the Administration is truly serious about developing and deploying an effective NMD system.

Let me turn briefly to the issue of the Administration's controversial efforts to (quote) "strengthen" (unquote) the ABM Treaty.

In a joint statement issued this past Monday, Secretary of State Christopher and Russian Foreign Minister announced they had reached agreement on demarcation of strategic and theater missile defenses. This agreement allegedly would allow lower-velocity TMD systems such as PAC-3, Navy Lower Tier, and THAAD, to be developed and deployed.

Some consider this a breakthrough. In fact, there are serious questions about this agreement: Does it permit full use of data derived from space-based sensors? How does it affect Navy Upper Tier and other high-velocity TMD systems? What concessions were we forced to make in order to gain Russian agreement? And more importantly, why does the Administration feel compelled to negotiate such agreements in the first place? In fact, the United States is well within its rights to issue ABM Treaty compliance determinations unilaterally—a key point conceded by DOD witnesses in testimony before this Committee earlier this year.

I also question the Administration's commitment to the Constitutional principle of ensuring Congressional oversight and approval of such agreements. Existing law requires that any substantive change to the ABM Treaty must be submitted to the Senate for its advice and consent.

Yet the Administration has refused to commit to submitting this agreement or the agreement to multilateralize the ABM Treaty to the Congress. I suspect they fear that by doing so they would be forced to answer some tough questions—questions which would reveal that these agreements are both unnecessary and counter to U.S. national security interests.

I trust that our witnesses will be able to shed some light on these and related matters. Let me now turn to the chairman of the Military Procurement Subcommittee, the gentleman from California, Mr. Hunter, for any comments he'd like to make.

Mr. WELDON. Mr. Hunter.

STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. Thank you, Mr. Chairman, and thanks for calling the hearing, and let me just give my position on why I am here. Dr. Kaminski, the 1991 Missile Defense Act became law. That became law in the wake of Desert Storm in which we saw the ballistic missiles take the lives of American service people, and we said as a nation never again, having watched our Patriots go up and in some cases intercept missiles and other cases miss them to our detriment. And we passed overwhelmingly the 1991 Missile Defense Act. The 1991 Missile Defense Act said in main part the Secretary of Defense shall aggressively pursue the development of advanced theater missile defense systems with the objective of downselecting and deploying such systems by the mid-1990's.

Now before I talked to Curt and talked about having this hearing, I asked the Congressional Research Service [CRS], our research service and our experts in that service, to tell us what has happened with respect to whether or not we have deployed aggressively, downselected and deployed anything since it became law that we were supposed to do that by the mid-1990's. This being 1996. And the answer that I have here, and I would like Mr. Chairman to make it part of the record says talking about the different types of systems that we have proposed finally says that since Desert Storm, since then, little has changed in terms of TMD systems deployed. The Army has developed and begun deploying an upgraded version of the Patriot called the PAC–3. It has been tested and according to the Pentagon is more effective than the Patriot system used in Desert Storm.

But as the United States learned in Desert Storm from a number of weapon systems, performance in wartime conditions is dramatically less than in peacetime controlled test environment. So with all the king's horses and all the king's men and this national mandate to you to aggressively deploy advanced theater missile defense systems since Desert Storm, Dr. Kaminski, little has changed, and I have been around here long enough to learn that there are always reasons, and I am sure you are going to lay out a number of reasons for why nothing has been done in terms of deployment, but if the balloon should go up in the Middle East and we have to deploy Americans in theater, it is going to be those people who are damaged and those lives that are taken as a result of an administration that in my estimation has dragged its feet kicking and screaming on missile defense, especially theater missile defense.

And, you know, I know you are going to talk about this demarcation that we have now established with the Russians. The interesting thing about that is the Russians did not bring up, at least according to the intelligence briefings that I have, the demarcation issue. We brought it up. Our ACTD people brought it up. So we gave ourselves a speeding ticket, and then they came in gleefully to tell us that they have fixed the ticket. So we gave ourselves a ticket and we fixed our own ticket. And lastly, I am reminded of your former boss, Johnnie Foster, one of the great DDR&E people

who has led in the defense leadership structure of this country in this century. Johnnie Foster knew there was a demarcation issue. And he took it upon himself to define the demarcation between theater defense systems and national defense systems.

And he designed what I think we used to call the Foster box, and I believe it was 2 kilometers a second. It could be somewhat different. But he was smart enough not to put that box in concrete. That was a unilateral decision that the United States made. Now with the geniuses in the administration rushing to put into concrete a demarcation with the Soviet Union, we are locking ourselves out of the capability of being able to handle incoming ballistic missiles as these missiles get faster and faster. If John Foster had put the Foster box in concrete, the 2 kilometers per second, we would not be able to develop the systems we are developing today without enormous retraction in terms of treaties and agreements with the then Soviet Union.

He was smart enough not to do that, and it pains me to see the administration first raising the question, bringing up and creating the problem, and then proudly telling Congress we have solved this problem, and in doing so, prohibiting us from being able to develop systems that will protect our troops, our people in theater, against, of all things, fast missiles. There is no law that says that a Korea, a North Korea, cannot shoot American troops in theater with a Typo Dong II, with a fast missile.

Now, according to Mal O'Neill's testimony to us here, that missile that is now in development in North Korea cannot be handled by THAAD, cannot be handled by Navy Lower Tier, cannot be handled by any of the array of systems that we have got right now. So as we rush forward to establish this demarcation, we are establishing a demarcation that will detract from our ability to defend our troops. So in my estimation, the administration has failed to defend the country. They have failed in a mandate that was very strongly worded by the U.S. Congress and passed with a very high vote on both sides reflecting the will of the American people to never again have a scenario like we saw when those Iraqi Scuds exploded among American personnel in the Middle East.

It is almost 5 years later, and in the words of CRS little has changed. And I would like to you to explain today why it has been mission impossible to get these theater systems into the field. Thank you and thank you, Mr. Chairman.

Mr. WELDON. Thank you, Mr. Hunter.

[The prepared statement of Mr. Hunter follows:]

OPENING STATEMENT OF REP. DUNCAN HUNTER
CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE
HEARING ON B.M.D. PLANS, POLICIES, AND PROGRAMS
SEPTEMBER 27, 1996

Whereas Mr. Weldon focused his remarks primarily on National Missile Defense and the ABM Treaty, I would like to take a moment to discuss the Administration's theater missile defense programs.

There is no controversy over the question that theater missile threat is "here and now." North Korea, Iraq, Iran, Syria, Libya, China, and many other nations possess such missiles and a willingness, under certain circumstances, to use them against their neighbors and against U.S. forces. These missiles are becoming increasingly sophisticated and longer-range, and can be used to deliver conventional as well as nuclear, chemical, or biological warheads.

We now know, of course, that in addition to the approximately 90 missiles launched by Iraq during the Gulf War, Saddam Hussein ordered warheads filled with biological warfare agents be mated to his Scud missiles. Had these missiles been used perhaps millions could have been killed. Then, just a few months ago, China showed its true colors by launching missiles toward our friends on Taiwan. It can be said that the era of regional missile warfare is upon us.

These developments should point the way to a robust program aimed at developing and deploying improved TMD systems promptly. But the Administration has failed to institute such a program. Instead, its record of performance on TMD systems over the past four years can only be considered poor.

The United States has fielded no new TMD systems in the five-plus years since Desert Storm. To be sure, some modifications to existing systems have been provided in limited instances. But the bottom line is this: If war erupted tomorrow in the Gulf or Korea, to name two likely hotspots, U.S. forces would be ill-equipped to handle the known threat. Your testimony, Dr. Kaminski, confirms this point. I find that a national disgrace.

The Administration cannot blame the Congress for this sorry state of affairs. We have provided ample funding for TMD systems. In fact, we have added significant funding for various TMD systems, including THAAD and Navy Upper Tier in order to accelerate TMD programs. We have also provided statutory guidance to the Department to accelerate these programs. But the Department has refused to comply with the law and has failed to provide much-needed management attention on TMD systems.

For example, despite the importance of lower-tier defenses of ports and coastal operations, the Department allowed the schedule for Navy Lower Tier to slip. The Department refers to this delay as a (quote) "fact of life" slip, but I question that label. If the Department was serious about bringing this program to fruition, then senior leaders in the Services and in the Office of the Secretary of Defense, including you, Dr. Kaminski, would have identified any problems early and acted aggressively to solve them so they wouldn't become "fact of life" delays. Someone is responsible for allowing this situation to develop and I'd like to hear your assessment of who that individual is.

In addition, I remain disturbed by the fact that the Department failed to heed the recommendation of a senior warfighting commander-in-chief during the BMD Program Review. I understand that General Luck wrote to General Shalikashvili to urge that the budget for THAAD not be slashed and to apprise the Chairman of the value of upper tier systems such as THAAD as part of a layered defense architecture. Yet his opinion was summarily rejected and the budget for THAAD was reduced by $2 billion in order to free up resources for other Service modernization efforts.

This act represents a rejection of what Goldwater-Nichols was supposed to be all about: Give the warfighting CINC a greater voice in key resource allocation decisions. In this case, the U.S. commander assigned to defend the Korean peninsula was basically told by the Chairman, "Thanks, but we understand your needs better than you do." This troubling incident makes me wonder: How many other examples are there wherein the warfighting CINC's views have been rejected? Didn't the Department learn its lesson from the Somalia debacle?

I am also dismayed by the Department's refusal to embrace the Navy Upper Tier. The system holds tremendous promise, but the Department has failed to budget sufficient resources for it, refused to designate it a Major Defense Acquisition Program as directed by Congress, and disregarded the programmatic milestone dates set in law. This record of achievement certainly undermines the Department's professed commitment to a "robust" TMD program.

And, lastly, let me say a word about the ABM Treaty. I understand that you, Dr. Kaminski are planning to inform the Committee that a new ABM Treaty compliance certification has been signed allowing THAAD to proceed. That's great, but it begs some important questions: Why did it take so long to get this decision? Why does the certification approve the use of external cueing data from certain satellites (DSP), but not from others (e.g., SMTS)? And what is the value of and need for the recently-announced Agreed Statement on Demarcation in light of this certification?

I am hopeful that our witnesses this morning will be able to shed light on these topics and allay at least some of my concerns. Thank you, Mr. Chairman.

Mr. WELDON. The distinguished chairman of the full committee I have asked and does not have an opening statement. We appreciate him being here. He is always involved in these subcommittee hearings which amazes me how much time he devotes to these issues. And Floyd, we appreciate your presence here today.

And our friend and gentleman from South Carolina and who has been a leader on these issues for years and continues to be a leader, Mr. Spratt.

John.

Mr. SPRATT. Thank you very much, Mr. Chairman, and I welcome our distinguished witnesses, Dr. Kaminski, General Ralston, and General Lyles. I, too, welcome you to the helm and congratulate you on this promotion and say to you we all look forward to working with you.

General LYLES. Thank you.

STATEMENT OF HON. JOHN M. SPRATT, JR., A REPRESENTATIVE FROM SOUTH CAROLINA, RANKING MINORITY MEMBER, MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE

Mr. SPRATT. The debate in Congress on ballistic missile defense has been contentious. The opening statements are evidence of that, but for all the sound and fury on both sides of this issue, there really is not a heck of a lot of difference between what Dr. Kaminski and General Ralston and the Pentagon leadership and many Democrats like myself and others advocate for national missile defense, NMD and what my colleagues on the other side of the aisle are seeking, at least in the near term.

Secretary Kaminski has helped formulate a plan that has become known as 3-plus-3. The United States will develop and test a ground-based treaty-compliant missile defense system that can protect us against a handful of reentry vehicles, RV's, the type of RV's that a rogue nation like, say, North Korea might be able to launch and produce. And if this system proves itself worthy through testing and if the threat does indeed materialize, then we can deploy it by the year 2003 or within 3 years of whenever we make the decision to deploy—3 years to develop, 3 years to deploy, reasonable proposal.

And I would say to my colleagues on the other side, you added credibility to that proposal this year by plussing up the account for NMD because I think you make it quite realistic that we can indeed accomplish the goal we have set for ourselves in 3 years of reaching a decision about whether or not through testing and development we have a system worthy of my deployment. Most of my colleagues on the other side of the aisle agree that 2003 is a reasonable timeframe. This is the date we laid down in last year's defense authorization bill. This is also the date we laid down in H.R. 3144, the Defend America Act, or that those who drafted it laid down. And this is the date that I laid down in my substitute H.R. 3144, so this seems to be a consensus.

My good friend, Mr. Hunter, was recalling the Missile Defense Act of 1991. In that act, we said we wanted national Missile Defense by 1996, but it is not here. Technology has not materialized, and in part that is more due to a lack of focus than to a lack of

a funding. There has been a lot of money put into it, but it has gone in lots of different directions.

Most of my colleagues on the other side also agree that the rogue threat is a threat that we especially need to worry about. There are some of us who would like to protect against much more sophisticated, much more massive threats, such as the Russians and maybe some day the Chinese might be able to launch at us, but that kind of technology is still a reach, and we certainly could not field a system of that kind with the technology we have in hand by the year 2003. But we still have our nuclear arsenal. We should not forget that or ignore 50 years of history, 40 years of history where deterrence has worked.

Finally, some of my colleagues on the other side agree that we should stay within the confines of the ABM Treaty at least for now, not forever, but at least for now. Many want to amend the treaty to allow for multiple sites. I agree with that so long as we do not risk ratification of START II, which I think is the immediate and most important priority. So while there is a vocal element of Republicans calling for outright abrogation, there is a sizable segment who are willing to abide by the treaty for awhile longer, wanting only to amend it and not to absolutely discard it. The date is not at issue. The rogue threat is not at issue. The ABM Treaty within broad outlines is not at issue. And most of us agree that a ground-based system is a reasonable technology option at least for the near term. I think many Republicans would go along with a system that is treaty-compliant at least initially at the start.

So what is at issue? What is all the sound and fury about? When to deploy or more precisely when we will decide to deploy? The Pentagon wants to develop the technology, test it, and then make sure that the threat warrants deployment and the billions of dollars it will take to procure and operate even a simple basic ground-based system. Some of my friends on the other side want to make a decision to deploy now, today, this year, even though we have not had a single flight test and no rogue nation yet has a system that can reach our Nation. One strategy is based on events and validation; the other on a calendar.

If this hearing follows the pattern of our earlier ones, we will hear a great deal of testimony about technology and the nuances of the ABM Treaty. In the midst of all this, we tend to overlook our common ground and accent our differences. While we may disagree over minor technical issues or more substantively, the exact timing of a deployment decision, we shouldn't forget how much we have in common. We are, in fact, developing a ground-based system that may, in fact, be capable of protecting the Nation against rogue threats shortly after the turn of the century.

I think it is important to keep sight of this fact as we start the last of countless hearings on the topic of ballistic missile defense for this session. Thank you, Mr. Chairman. I look forward to the hearing.

Mr. WELDON. Thank you, John, and I appreciate your comments and your views on this issue and appreciate your involvement as well. Mr. Skelton is the ranking member of the Procurement Committee, and he is not here, but I would invite any other member

that would like to make a brief opening statement to do so. Anyone over here?

Mr. Sisisky.

Mr. SISISKY. Mr. Chairman, if we did not have witnesses, I would probably ask you questions.

Mr. WELDON. Well, that is OK. We could have a debate. I would probably enjoy that more.

Mr. SISISKY. Mr. Hunter, I am more intrigued by what you said than maybe our witnesses, but maybe our witnesses will entertain us.

Mr. WELDON. They will have their chance.

Mr. SISISKY. And I look forward to their testimony.

Mr. WELDON. Thank you, Mr. Sisisky. Anyone else? Thank you all, and with that, we will now turn to our distinguished panelists, and as you know, Dr. Kaminski, I have the highest regard for you personally as well do. You are in a very difficult position, and you are doing an admirable job, and we appreciate that, and I welcome you here and I welcome General Ralston here. You both are to be commended for the service you are performing for our country. We appreciate that deeply.

Dr. Kaminski.

STATEMENT OF HON. PAUL G. KAMINSKI, UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND TECHNOLOGY

Mr. KAMINSKI. Thank you, Mr. Chairman. With your permission, I would like to submit my prepared statement for the record.

Mr. WELDON. Without objection.

Mr. KAMINSKI. And then I would first, just to open, indicate in my testimony that follows, I would like to respond to the issue you raised with respect to our discussion really on is it affordability or technology that is limiting our program. The real answer to that is both, and what I hope to explain today is what the relative elements of each of those are. Mr. Hunter, I also in my testimony this morning would like to respond to your question of what have we fielded since Desert Storm. I have an explicit example to show you that which we have fielded. I believe it is a very substantial enhancement over and above the capability that we did have deployed with our forces in Desert Storm, enhancements to the PAC–2 command and control, enhancements to the Hawk which today are fielded and usable by our forces.

I also expect to respond in more detail on the issue of demarcation. I perhaps see it differently than you do. I do not see demarcation putting any constraints on our current program that leaves in place the existing apparatus that we have for compliance. I see it as a path to open doors for key components of our system to give them a free path, and I will also describe that in perspective, if you would permit.

I would very much associate myself with Mr. Spratt's comments on the issue here of the importance of focus and stability in these programs to be moving with a stable program that has a focus to field a operationally effective and affordable capability. That is what we're trying to do, and if you would permit me, what I'd like to do now is just briefly describe how whole program in that context.

If I look at the big picture here, my sense is that all of us in this room in our adult lives have been living under a dark cloud hanging over our heads. This cloud is represented/has been represented by the horrific threat of a nuclear war that would end our way of life and our civilization as we know it today. And now with the end of the cold war, that dark cloud is beginning to drift away a bit, and the whole world is breathing a little easier. But that cloud is not really fully gone. The world's nuclear powers still hold thousands of nuclear weapons along with many hundreds of missiles to deliver them. And many of the countries, some of the rogue nations, to which the calculus of deterrence may not apply in the same way, are acquiring the means to deliver weapons of mass destruction: nuclear, biological, and chemical.

Many of these nations have obtained ballistic missiles, short-range ballistic missiles in most cases, and some are in the process of acquiring longer range ballistic and cruise missiles. The proliferation of short-range ballistic missiles in the world today poses a direct and immediate threat to many of our allies and to some U.S. forces deployed abroad in defense of our national interests. Over time, we believe the proliferation of longer range missiles will pose a greater threat to the United States itself. For these reasons, active defenses are playing a central and a vital role in U.S. defense planning well into the next century.

The resource-constrained environment of the 1990's, together with the complex nature of the security challenges facing us, requires that we deploy the right capabilities at the right time for achieving the highest level of security for the United States. To do so, I think we must consider the role of missile defense within the Nation's broader national security context. Active defenses can never be considered in and of themselves as a panacea for countering the proliferation of ballistic missiles and weapons of mass destruction.

If I may have the first slide, please. This slide describes, I think, in context our broader strategy for encompassing a full range of tools in our national kit of options. Our strategy here has three components: preventing and reducing the threat, deterring the threat, and if needed defending against the threat. For example, we have adopted the Non-Proliferation Treaty, the Framework Agreement with North Korea, the INF Treaty, the Missile Test Control Regime [MTCR] and export controls as ways of preening or reducing the threat to our allies and to United States forces deployed abroad. The threat to the United States has been reduced significantly through the Strategic Arms Reduction Treaty [START], and it will be reduced even further through the START II Treaty when Russia ratifies it.

[The information referred to was submitted for the record:]

Ballistic Missile Defense

Meeting the Threat

	To Theater	To United States
Prevent / Reduce Threat	Nonproliferation Treaty, North Korea Framework Agreement, INF Treaty, MTCR, Export Controls	START I, START II, Cooperative Threat Reduction (Nunn-Lugar)
Deter Threat	Counterproliferation, Theater Nuclear Forces	Strategic Nuclear Forces
Defend Against Threat	TMD Lower and Upper Tiers	NMD

Additionally, we have an extensive program for actually dismantling the warheads and the missiles that had been directed against us in a cooperative threat reduction program that has been well supported by you through the use of Nunn-Lugar funds. This is our first line of defense against ballistic missiles and weapons of mass destruction: preventing and reducing that threat right up front where we can.

The second line of defense is deterrence. In the case of long-range missile threat to the United States either from land-based intercontinental ballistic missiles or from sublaunched ballistic missiles our strategic nuclear forces have been a bulwark of deterrence for nearly a half century now, and that will continue. We have smaller numbers of nuclear forces than we did a decade ago, but they are still very powerful and quite capable of carrying out a strategic deterrence mission.

In the case of deterring short-range missile threats, our theater nuclear forces are an effective deterrent one level down as well. Now, as we move to the third piece of the chart, this is our program of active defense, a program in the theater of lower and upper tiers that I will describe and a program for defense of the continental United States of national missile defense.

Next chart, please. If we look at the missile threats, first we take the theater ballistic missile threats. The issue here is that the short-range threat is here and now. We have ballistic missiles in many countries. Our forces when forward deployed are at risk to this threat today. This is a threat we must move out aggressively to deal with, and I will describe our program of doing that.

[The information referred to was submitted for the record:]

Missile Threats

Theater Ballistic Missiles

- Short Range - Here and Now, Many Countries
- Medium Range - Emerging
- Chemical, Biological - Now
- Nuclear - Possible In The Future

Strategic Ballistic Missiles

- Russia / China Face Significant U.S. Deterrent
- Threat From Rogue Nations Not Expected Soon, But Could Emerge In The Future

Cruise Missiles

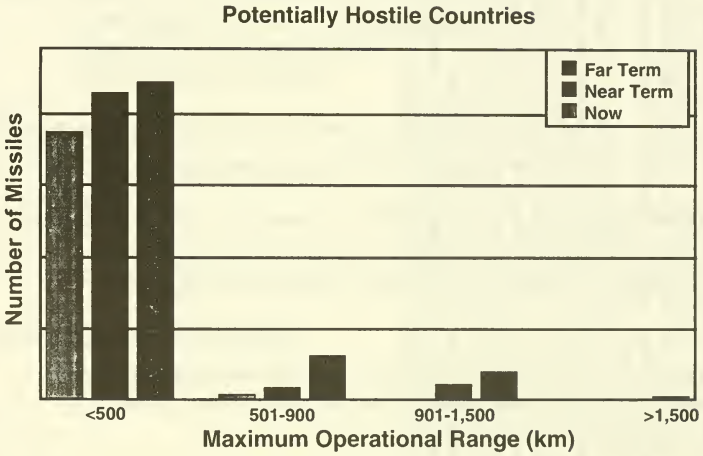
Next we have a medium-range threat that is emerging. We also have to have a means to deploy the capability to deal with this emerging threat as it comes about. The threat of chemical and biological weapons is here today. It is something we have to deal with in even the short-range systems, and the nuclear threat is indeed possible in the future, and we need to be able to plan to deal with that as well.

With respect to strategic ballistic missiles, Russia and China face significant United States deterrent forces. We do not expect a threat to the United States from rogue nations in the immediate future, but that threat could emerge, and our 3-plus-3 program is designed to deal with that emerging threat from rogue nations. We have something else that has been not given in my opinion suitable attention in the past, and that is the cruise missile threat as well. We perhaps in some sense are heading toward an imbalance if we look at our programs and spending in defense of ballistic missiles and need to have in balance a similar program to deal with the cruise missile threat.

If I may have the next chart, I would like to show you a sense of this issue of what is here today and what is coming and how does it look as a function of range. I have taken some numbers off this chart so I could remove the classification. The actual numbers are classified. What I have done is made a relative presentation here. There are three colors on the chart. The green bar indicates what is here today. And if we look at the green bars, we see a relatively significant number of deployed ballistic missiles with range less than 500 kilometers. That is a big green bar. If we look today at what is deployed with ranges greater than that, it is not very much. You see a very small green bar in the 500–900 kilometer range and no green bar in the longer ranges.

[The information referred to was submitted for the record:]

TBM Force Projections



If we look about 10 years from now, you see the blue bar in which the number of missiles is increasing in the below 500 kilometer range, and we start to see the blue bar rise a little bit in the further ranges. Looking about 20 years into the future, there is the red bar, and so we can begin to see over time the emergence of the longer range threats that we have to deal with. Now, it is not only an issue of range. There will be an important issue that I will want to describe with respect to having multiple shots as well associated with an upper tier that is an important consideration in these calculations.

Next chart, please. I indicated the importance of the cruise missile threat. There are land attack cruise missiles today deployed in the United States, in Russia, and France. The range of these systems is over 150 kilometers and they are autonomously guided. A dozen or so other countries are developing land attack cruise missiles. The turbojet engines now and the use of GPS or other means of guidance are becoming widely available to support this kind of capability. And you can see the important leverage that the United States has applied also with its cruise missile capability.

[The information referred to was submitted for the record:]

Land Attack Cruise Missiles

An Emerging Threat

Land Attack Cruise Missiles (LACMs)

- Now Deployed In U.S., Russia, France
- Range Over 150 km / 81 n.m.
- Autonomously Guided

Dozen or So Other Countries Developing LACMs

- Turbojet Engines and GPS Guidance Widely Available

Threat States Are Focused On Short Range Ballistic Missiles

- Limited Number Of LACMs Projected After Early 2000's
- Widespread Proliferation of High-Tech LACMs - 10-15 Years Away

Anti-Ship Cruise Missiles

- Widely Deployed Robust Threat (70+ Nations)
- Limited Land Attack Capability (Most Short Range <60 km)

Threat states today are focused on short-range ballistic missiles and our intelligence forecasts indicate only a limited number of land attack cruise missiles are projected until the turn of the century. Widespread proliferation of high-technology, and by high-technology, I mean low signature advance cruise missiles, are not projected today for about 10 to 15 years. But one of the problems that I see here are that antiship cruise missiles are widely deployed today. They are owned and deployed by more than 70 nations, and here my concern is the conversion of those ship attack cruise missiles to land attack. It is a straightforward conversion, and so this threat could come along a little sooner and something we have to plan for carefully and put in balance in our overall program.

Next chart, please. Given the threat that I described, our missile defense priorities move in three tiers. The first priority is to defend against what I would call the here-and-now, the theater ballistic and cruise missiles in the short-to-medium range category. These are being dealt with primarily by our TMD lower tier systems, although as I said the upper tier does have some role here as well.

[The information referred to was submitted for the record:]

Missile Defense Priorities

Defend Against Theater Ballistic and Cruise Missiles

- Short-to-Medium Range Missiles (TMD Lower Tier)
- Area Defense and Longer-Range Missiles (TMD Upper Tier)

Develop Capability to Defend Against ICBMs Threatening the United States (NMD)

Develop Technology to Hedge Against the Future Threat (Technology Base)

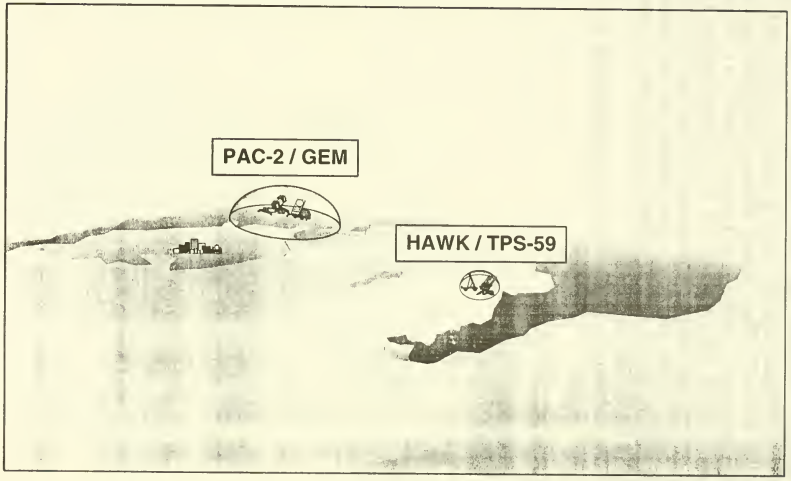
We Are Increasing Our Emphasis On Responses To The Cruise Missile Threat

Next priority under this category is area defense and longer range missile systems, which, as I said, the TMD upper tier addresses. The next major priority is to develop the capability to defense against ICBM's that are threatening the United States. This is our National Missile Defense Program. This is a threat that is further off. And then finally to develop the technology to hedge against the future threat, improvements that we see that would be possible and that would be effective in undermining very thin capabilities that we might be able to deploy quickly. We need to be in this race here for the long run with our technology program.

And the last point on this chart that we need to and in fact we are increasing our emphasis on responses to the cruise missile threat that I described. We have not given that adequate attention in the past, in my opinion.

[The information referred to was submitted for the record:]

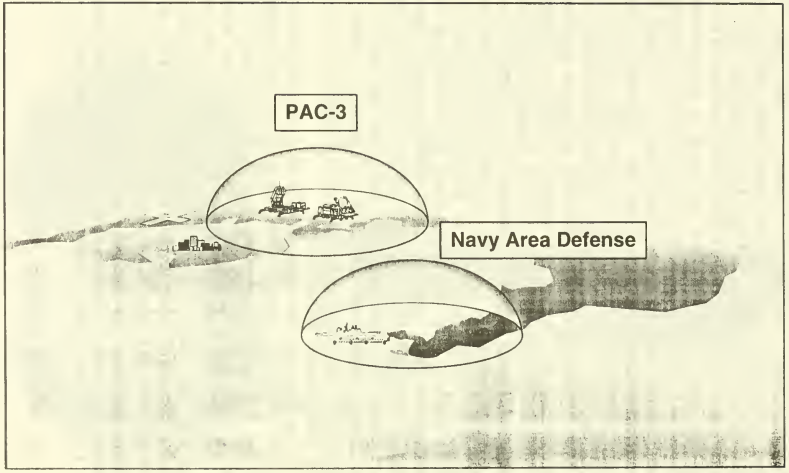
Fielded TMD Capabilities



Let us now talk about what is fielded, Mr. Hunter, to really get back to your question in terms of TMD capability. There are two principal systems that are fielded today: the PAC–2/guidance enhanced missile and the Hawk with an improved radar, an upgrade to the TPS–59. This Hawk system recently conducted two successful intercepts against a Lance missile at White Sands missile range. These capabilities are in the field today. In a minute, I will show you the other enhancements that go with this that are fielded, but let me now show you where we are headed with the next generation of lower tier systems that are in development today, if I may have the next chart.

[The information referred to was submitted for the record:]

TMD Lower Tier



This chart shows our two primary major defense acquisition program lower tier systems, the PAC–3 and the Navy area defense system. These are drawn to scale to give you a feel for sort of the area covered in comparison with that which is fielded today, the PAC–2/GEM system and the Hawk system. Now these systems are beginning to move in a different direction. The Navy area defense system that I have here is using a somewhat conventional approach. It is using a focused warhead. It is using an explosive warhead which has some sophistication in it that is designed to preferentially direct the charge in the direction of the threat. So rather than blowing up as a warhead would with a circular pattern, it is designed to direct its energy against the threat missile system.

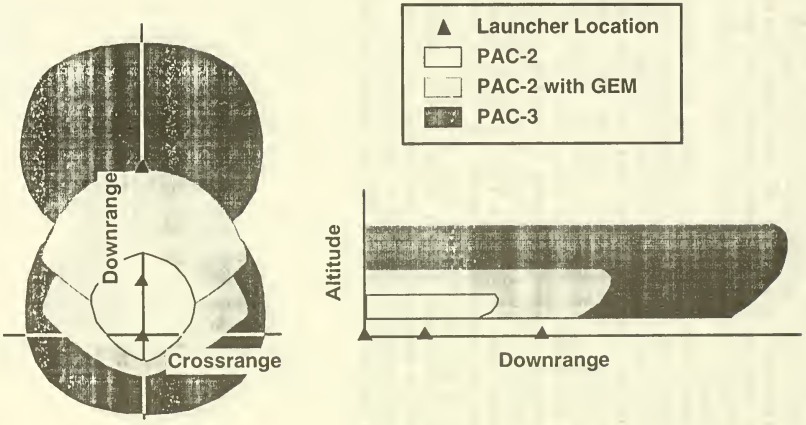
The PAC–3 system is the first of these systems that I would describe that is a hit-to-kill system. This is a system that is designed to physically impact the ballistic missile and destroy it by physical impact. This hit-to-kill approach, we believe to be a very high leverage approach, but it is an approach that has some technical challenges to work out. This is literally shooting at a bullet with another bullet. The velocities that are involved here of both the incoming ballistic missile and our intercept systems are velocities that are higher than the velocity of an M–16 bullet. And so bringing about the technology to hit a bullet with a bullet is a critical challenge here, and the PAC–3 system is now committed to that hit-to-kill approach. It has many benefits; it has some risks that I will describe in a minute.

If we look at the capabilities now on the next chart, I would like to put these in perspective. In gray on this chart is the capability of the PAC–2 system that we had deployed in Desert Storm. You see it has on the curve to the right a limited altitude capability and a limited down-range capability. Shown in green on this same chart is the improved PAC–2 with the guidance enhanced missile that we have fielded since Desert Storm. This is in the field today. I think you can see in green the substantial improvement in capability in both altitude and down-range intercept capability that this system has vis-a-vis the PAC–2 deployed in Desert Storm.

[The information referred to was submitted for the record:]

Patriot System Performance

Versus 500 km TBM Threat



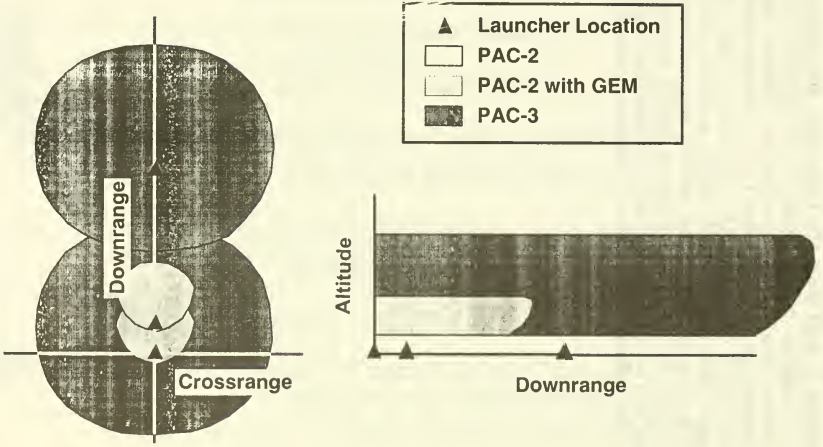
And then the third area shown in blue is a capability that we expect to achieve with the PAC–3, far greater altitude and far greater area coverage, and you can see the top view of these three curves indicated on the left-hand side. This chart, I think, also does not describe the improved lethality that we expect to get with the hit-to-kill capability provided that we make this hit to kill capability work.

Next chart. That was against the 500-kilometer threat that I showed you was widely deployed today. Now the issue is what can you do against a 1,000-kilometer threat that I showed was beginning, was the second bar that was beginning to grow a little bit as we looked out 10 years. Against the 1,000-kilometer threat, the PAC–2 capability that we had in Desert Storm does not show up on the chart because it does not have the capability against this emerging threat. The green shows the areas that the PAC–2 with a guidance enhanced missile has, and then the blue shows the expected capability with a PAC–3. Here there is a bigger difference than we saw before. That is the PAC–2 with the GEM is running out of gas against this more advanced threat, but the PAC–3 system would still have a significant capability. The PAC–3 here, I want to emphasize, is not fielded yet. This is a system that is in development; it is in test at the moment.

[The information referred to was submitted for the record:]

Patriot System Performance

Versus 1,000 km TBM Threat

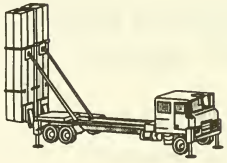


Next chart, please. There is another program that we are also beginning to deal with the lower tier, the shorter range threat. This is a program called MEADS, the Medium Extended Air Defense System. This is a system that is different than the PAC–3 that I described in two respects. One, it provides 360 degree protection. The PAC–3 has a favorable direction of intercept. This provides 360 degree coverage. Second, this is a system that is deployable in C–130's. This is designed to go with our maneuver forces. This system will also have the capability to defend against cruise missiles, and this will be a high priority in this system as well.

[The information referred to was submitted for the record:]

MEADS

Medium Extended Air Defense System



Provides 360 Degree Protection

- Short-to-Medium Range TBMs
- Cruise Missiles
- UAVs and Other Air Breathing Threats

"Designed In" Interoperability with Two NATO Allies (GE, IT)

Supports Maneuver and Expeditionary Forces

Status

- NATO Program Agency Formed in Huntsville, AL
- International Program Entering
  - Project Definition-Validation Phase

One other important feature associated with this program is that we have designed in interoperability in a cooperative program with two of our North Atlantic Treaty Organization [NATO] allies: Germany and Italy have joined us to fund this cooperative program so we can benefit from their resources and share in the cooperative development. We have now formed up an International Program Office located in Huntsville. That office is headed by a German, Brigadier General Mooniere. It is in place, and we are ready to proceed with this program. We have had some issues associated with funding with this program. I believe that providing the $56 million that was requested for this program in 1997 is very key. You have authorized this amount for the program. We still perhaps have an issue in appropriations, but I think I am beginning to hear good news about seeing this fully funded in appropriations conference as well. This is a very key program to us. It, however, is at a very early stage. It is at the program definition stage.

Next chart, please. If I would wrap up what we are trying to do with our Lower Tier Program, this is a high-priority program because it is responding to the here-and-now threat that I described to you, the below 500-kilometer and the emerging 1,000 kilometer threat. Our objective here is to field the capability to defeat this threat as soon as possible. What we are trying to do is build on existing infrastructure and prior investment. The infrastructure here is the PAC–2 launcher infrastructure that we already have fielded for supplying a new and upgraded missile and the AEGIS structure that we have in place for the SM–2/block 4–A missile with its new focused energy warhead.

[The information referred to was submitted for the record:]

TMD Lower Tier

Near-Term Approach

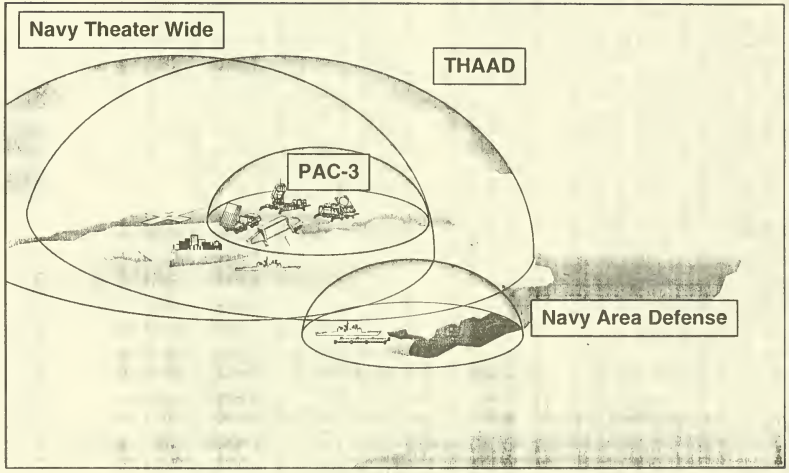
- Field a Capability to Defeat Short-to-Medium Range TBMs as Soon as Possible
- Build On Existing Infrastructure and Prior Investment
- Expand Capability of Patriot and Aegis/Standard Missile Systems
- Continue MEADS International Program with Allies
- Improve Battle Management, Command, Control, and Communications (BMC^3) Capability

We are looking to expand the capability of those systems in the way I showed you with the enhanced diagram and to continue our program of international cooperation with our allies on MEADS. Something I did not illustrate to you on the chart, but it is a big deal, is improving our battle management and command, control and communications capability that tie these systems together and provide their eyes and ears. This is a very important component of the program. It is just a little hard to draw a picture of.

Let me now proceed to describe the upper tier systems. Next chart, please. Again, what I have done is drawn to scale the circles that I showed you earlier for the PAC–3 and the Navy area defense system are drawn in the scale as I have shown before, and now I have indicated the kind of intercept capability that would be possible with our upper tier systems, the THAAD and the Navy Theater Wide systems.

[The information referred to was submitted for the record:]

TMD Lower and Upper Tiers



These systems have the capability now to reach out much farther, to be more effective against the longer range threat, and to intercept in the case of the THAAD both in the atmosphere and outside of the atmosphere, both endo and exo, and in the case of the Navy Theater Wide system, outside of the atmosphere only. It would not have no capability within the sensible atmosphere.

These systems greatly expand the range of coverage. They over use the capability to do what I would call shoot-look-shoot. That is they give us multiple shot opportunities to deal with leakers so they will be more effective, for example, in defending population centers. Both of these systems are hit to kill systems. So they are both depending upon this technology now at higher velocities and with more refined kill vehicles to do this firing a bullet against the bullet.

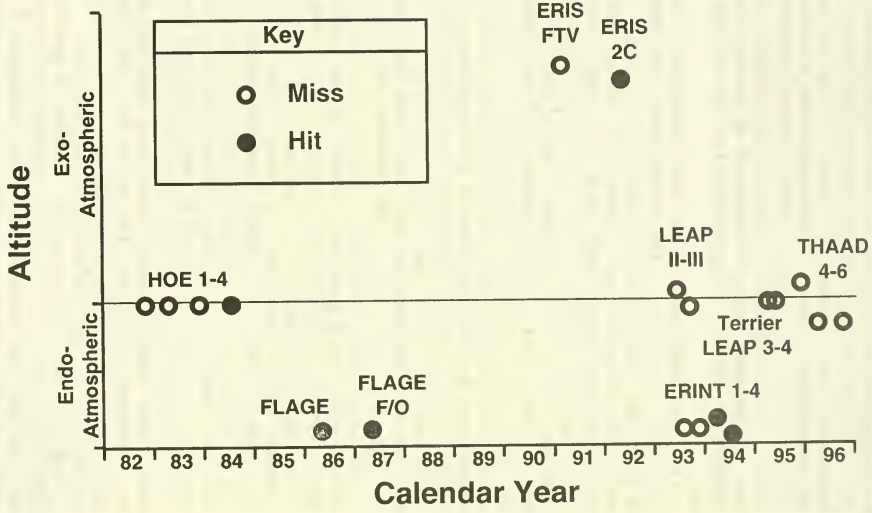
As I indicated earlier, one of the our lower tier systems was depending on hit to kill. Now both of these upper tier systems will be depending upon making hit to kill work. I would like to talk a little bit about this whole issue of hit to kill because it really is a critical issue in terms of what is limiting the program, what is the prudent pace.

Next chart, please. What I did here, Mr. Chairman, was gathered up all of our hit-to-kill test firings that have been conducted by the Department since the SDIO Program actually began this work, the first one shown in 1982. Again, I want to emphasize here what we are talking about here is a bullet versus a bullet. Here we have both the incoming bullet and the intercepting bullet traveling at a few miles per second, something about a factor of two faster than an M–16 bullet would be traveling. And here the advantage is that if you hit, there is great destructive energy, and that is what we are looking to take advantage of. On the other hand, if you miss, you have not done a thing. So there is a great premium on hitting in this hit-to-kill approach.

[The information referred to was submitted for the record:]

Test Results

Ballistic Missile Hit-to-Kill Intercept Attempts



Now what I have plotted on this chart are attempts to make this technology work through the years. On the lower piece of the curve are intercepts in the atmosphere, so-called endo atmospheric, and above that line are intercepts outside of the atmosphere, so-called exo atmospheric. The red circles indicated where we attempted an intercept and had a miss. Sometimes these misses had nothing to do with the kill vehicle. We did not get the kill vehicle in the right box. In fact, that happened in most of these cases, and one of the problems is getting a big enough box for the kill vehicle to work in.

The green solid dots show those situations where we have had a hit. And if you look at the overall score here through our history, it has been 6 hits out of 19 attempts. We, in my opinion, as I look at all this data have now shown that we can hit a target in this sense. We can make a bullet hit a bullet. And we can do that under ideal conditions. The next step in this kind of a program is to move from the 6 out of 19 to do what I would describe is to hit not occasionally but to hit routinely under ideal conditions. That is where we are trying to take this program now so that on a routine basis we can be making hit after hit under ideal conditions. And then we want to get to the third piece of this program, which it to hit routinely under stressful operational conditions. That is the path we are on with this program, a path in which we would be seeing all of these red dots here on this chart now beginning to turn green. We have the best minds in the country working on this program.

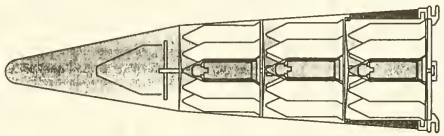
One of my own issues, as I look at this program, is how many different hit-to-kill programs should we be operating at the same time in parallel. Should we be reasonably prudent at looking at alternative approaches and learning from those alternative approaches before launching too many different hit-to-kill programs in parallel. That is the issue I have been wrestling with and looking at the pace of the technology and affordability decisions. I believe we want to be on this course. This is a very high leverage course for us, but we want to work through the technology and demonstrating that we can do this hit-to-kill routinely and that we can do this under stressful conditions, and that is what our flight test program is all about. That is the key issue that we are looking at in our THAAD flight test program and the key issue that we will be looking at in the PAC–3 flight test program.

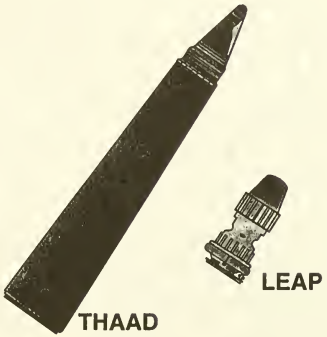
And this, Mr. Chairman, Mr. Weldon, is part of the issue I was discussing with you about are we technology limited or are we dollars limited? And some pieces of our programs, I believe this technology is still limiting us today. In other pieces of our program, where we have demonstrated a capability and the issue is how fast can we field in the out-years, those issues are largely affordability driven. So it is some combination as we look at how we deal with this problem.

I would, Mr. Chairman, also like to discuss one other chart, if I may. I do not have a briefing chart for this, but I would like to pass out a sketch. This sketch did a great deal for me in terms of understanding this problem, and the particular issue of how fast should we push. I will wait for a minute for those to be passed out. This business of hit-to-kill sometimes becomes so arcane that it is helpful to see a picture, and this picture did a lot for me.

[The information referred to was submitted for the record:]

THAAD AND LEAP KKV LETHALITY





- Lethality Effects Scale Somewhere Between Momentum (mv) And Kinetic Energy ($^1/_2$ mv^2)
  - No Practical Difference For Unitary Warheads
  - May Tend More Toward Momentum For Weapons Of Mass Destruction
- BMDO Lethality Program Is Working To Define Lethality Effects

At the top of this chart, I have shown to scale a representative threat reentry vehicle, and the particular one I have shown has little smaller submunitions shown in it. That is the way an adversary might package, for example, the chemical or biological munition, to have each of these little containers deploy, and, of course, one of our issues would be that we would want to hit this reentry vehicle before those little containers deployed because it is then Katie-bar-the-door once those individual containers are out and deployed over a big area. That is one of the reasons you would like to intercept early. It is one of the reasons you would like an upper tier system, for example, to intercept before these submunitions deploy.

Now I have shown also in scale below this the size of the THAAD kill vehicle, and the issue here is to transfer enough energy from this kill vehicle to be able to wipe out all those submunitions. I have shown to scale what we have been investigating as the leap Navy theater wide vehicle. It is a much smaller vehicle. We are going to place much more demands on hit-to-kill system, and I think you can see small issues like where exactly do I hit are very important, and can I make up, deliver enough energy, by flying faster, for example, with less mass so I get the same amount of kinetic energy that I would have had flying slower with greater mass?

These are some of the kinds of technical issues we are working through to try to forge a path with what is sensible to do and how fast can we move responsibly and on a steady and sustained pace to deploy this capability? I would summarize then on the Navy upper tier systems that what we are trying to do here is continue on the solid base we had in the THAAD Program. In the adjustments that I described to you last year, we did nothing to change the technical place for the pace for the user operational evaluation system for THAAD. We did make a very substantial adjustment in the THAAD Program, but that adjustment had to do with the out-year deployment. It is an adjustment that you had an opportunity to correct through the addition of funds in 1997.

[The information referred to was submitted for the record:]

TMD Upper Tier

Near-Term Approach

Continue Development of the Theater High-Altitude Area Defense (THAAD) System

- Most Mature Upper Tier System
- Structure to Focus on Nearer-Term Threat with Reduced Program Risk

Proceed with Navy Theater Wide (NTW) Concept Definition and Technology Demonstration

- Prudent Development Pace to Reduce Technical Risks and Define System Performance Requirements

We did nothing to change the technical pace of that program that has not been dollar-driven. What we are looking to do now is to refine our concept for the Navy theater wide system, to do a combination of selection of the appropriate kill vehicle and to do some additional flight testing to be able to convince ourselves that we can continue to do this job as we get to a smaller and more advanced kill vehicle in the process.

Next chart, please. Bob, we can go to the next chart. Now are not placing all of our eggs in the hit-to-kill basket, and in fact the submunitions problem that I described to you can be a difficult problem because an adversary could arrange to deploy these submunitions even earlier, and here our interest would be to try to kill the threat vehicle at a very early stage. A very desirable place to get at the kill vehicle is doing its boost phase, while the booster is still operating, long before it has had the chance to deploy any submunitions. So we have a very serious program here to look at the development of an airborne laser. This is a revolutionary new weapon system concept. It is dependent on the critical capability to correct for atmospheric distortion.

[The information referred to was submitted for the record:]

Airborne Laser

Revolutionary New Weapon System Concept

- Offers a Cost Effective Boost Phase Intercept Capability Theater Ballistic Missiles Killed Over Enemy Territory
- Deterrent Against Launches of Weapons of Mass Destruction

Entering Program Definition and Risk Reduction Phase

- Integrates High Energy Laser Into a Boeing 747 Airframe
- Matures Efficient High Energy Laser
- Demonstrates Active Laser Tracking and Atmospheric Compensation Techniques
- Culminates with Destruction of Boosting Missile in Fiscal 2002

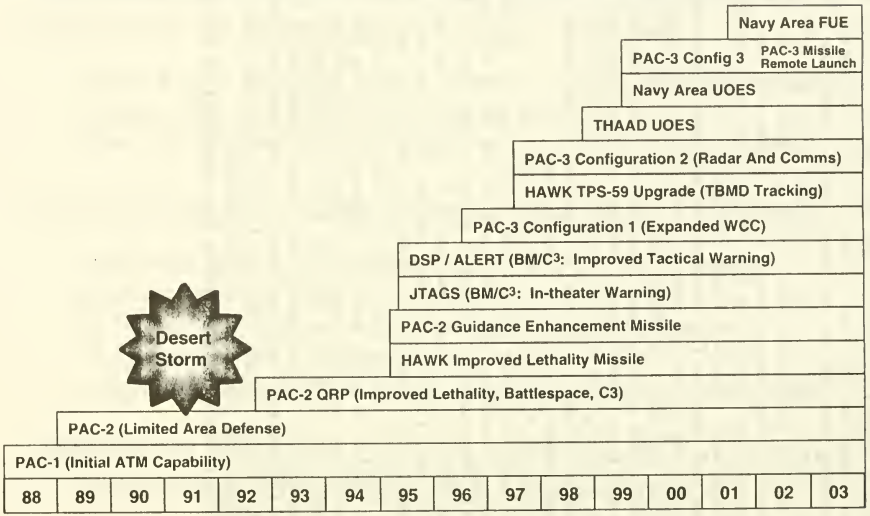
Operational Concept: Employs Long Range Autonomous Sensors to Achieve Standoff Lethal Range

As we send a laser beam through the atmosphere, as it travels a few hundred kilometers, the atmosphere distorts it badly. It is that distortion that makes stars twinkle, and we cannot afford any twinkling here. What we have to do is correct for all the propagation errors in the atmosphere so that when the beam arrives there is not any twinkle in the star, it is a perfectly focused beam. We have a critical experiment to be conducted next year to demonstrate that we can, in fact, make these atmospheric corrections. I have seen us make these corrections looking at the images of stars and planets. The issue is can we make these corrections propagating high levels of energy through the atmosphere. We have a critical milestone to demonstrate that next year. If that milestone is successful and we pass two other key entry criteria, exit criteria, we will then move to begin scaling up, installing this laser system into a Boeing 747 airframe. This is a key component of our Theater Missile Defense programs, dealing in a fundamental way with the submunition problem that I illustrated.

Next chart, please. Mr. Hunter, this chart, I think, deals with the issue that you raised over what have we done since Desert Storm. Shown on the lower left of this chart is Desert Storm in 1991. What we had fielded to support our forces in Desert Storm was the PAC–1, which had almost no ballistic missile defense capability, and then the PAC–2 system. This was the system that I showed in the small gray areas in the charts on area covered. What we have then done since then is fielded two improved versions of the PAC–2, a quick reaction program, which is the next bar, and then if you jump up two bars, the PAC–2 guidance enhancement missile that I showed you the improved capability of. So both of those PAC–2 enhancements have been fielded since Desert Storm, and I think, as I indicated, they are very substantial enhancements to the PAC–2 capability, more than doubling the effective intercept altitude and range of the Patriot system.

[The information referred to was submitted for the record:]

TMD Capability Growth



We have also fielded the Hawk system that I talked about. We have tested that against the Lance missile. We have fielded numerous command and control improvements that are very critical. This JTAGS, the joint tactical air to ground system, gives the ability to take our threat warning information and send it directly to the ground so we can be much more responsive to the threat. And the improved DSP/ALERT Program improves that as well.

Now, beyond that point, what is shown are the fielding of the systems that we have in development, the PAC–3 configuration, not yet fielded, the configuration 1, and then other advancements to the Hawk, a configuration 2 for the PAC–3, and then next on the chart is our first upper tier system, the THAAD UOES system. This was a system in which you requested fielding in 1998. We are still on track to do that. We did nothing in our program to slow down the THAAD UOES capability, but I would tell you at the moment with our lack of success on the last three THAAD flights, it is going to be tenuous as to whether we can hold this schedule. I have asked General O'Neill to come back with a thorough review of the program and where we are today to be sure that we are on a realistic course. We have additional flight test here for THAAD scheduled in December of this year, and the success of that flight test is going to be very critical as to whether or not we can stay on this schedule with the THAAD Program.

I then show fielding of the Navy area system UOES capability, and then some additional enhancements in the configuration 3 of PAC, and then finally fielding of the full unit equipage of the Navy lower tier system. The fielding dates for the airborne laser and for the Navy Theater Wide Program, the first opportunities would be in about 2003 and 2004 respectively on the schedule that we are working on. So if you look at this combination, this is a very robust set of programs.

Looking at this in another perspective, I do not believe we are shy of major programs in theater missile defense. We have five major defense acquisition programs now operating in this area, and two that are at the pre-indepth stage. The five programs that we have in place that are major defense acquisition programs today are the PAC–3, the Navy area system, our two lower tier systems, the FAD, our airborne laser program, and the space-based infrared SMTS Program. The two programs that are now on a stage on a pre-indepth stage are the Navy Theater Wide and the MEADS Program. So this is a robust combination of programs that we are moving out on, and as I indicated to you, there is a reasonable fielding program. In fact, today we have fielded enhancements that are very substantial, over and above what we had deployed in Desert Storm.

The last issue I want to discuss, Mr. Chairman, is the National Missile Defense Program and where we are on that score. Once again I would like to put this in context of our overall program: the issue of removing and deterring the threat. And here what I want to illustrate is that our work on arms control does make a big difference. What I have done is plotted a curve here that shows the number of Russian nuclear warheads plotted versus time. Starting about 1990, it is just under 10,000 warheads deployed. Through our START I Program, that number will be taken down to about

5,000 deployed warheads. Moving toward START II, that will come down to just a little over 3,000 warheads. So if I look at this in summary, START I will be reducing the threat just about in half, taking about 5,000 warheads, and START II further reduces the threat by about another 1,400.

[The information referred to was submitted for the record:]

START I and II
NMD Program Implications

START I Reduces Threat To Less Than 4,900 Re-entry Vehicles
START II Further Reduces Threat By 1,400+ Re-entry Vehicles

NMD Architecture Counters Only About 20 Re-entry Vehicles

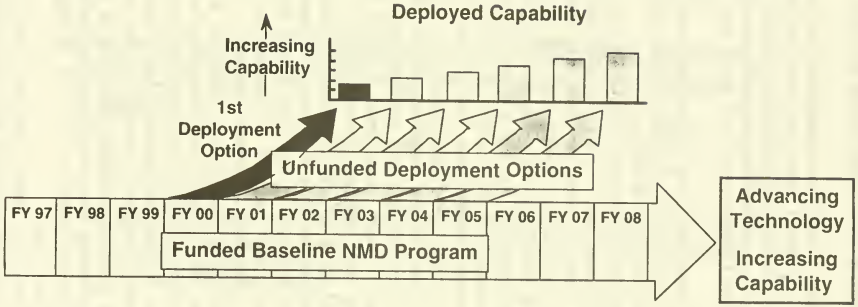
When we talk about early deployments of ballistic missile defense capability, we are talking about with something that is 20 nuclear warheads or less. That is the kind of capability we might have to defend against in the near term. So what I want to do is put in context looking at the enormous reduction in the threat capability that has come about because of our arms control program and the fact that in the near term those kind of threats that we can defend against are small in comparison, not unimportant. We have to deal with those threat systems, but I think you have to look at this overall program in context.

Now the issue is what are we doing about that smaller number of threat vehicles? And the next chart describes our National Missile Defense Program. This is the so-called three-plus-three program, and if you will, I would describe it as follows: what is funded in our budget is the light blue. It is the capability to move along in 3 years, fiscal years 1997, 1998, and 1999, and then I show some dark blue lines. In fiscal year 1999, at the end of that year, we have a deployment decision to make. We have not funded that deployment in our budget. If our decision is to proceed with the deployment, we now get on the blue arrow that is on the curve, and that will take some funding in excess of $5 billion, precise number still being determined in our reviews. It will take that funding to then move along that arrow and what you see then up above is a deployed capability, and that deployed capability would begin in fiscal year 2003. Now I have shown this notionally as a small capability because it will be a limited capability if we move out that quickly.

[The information referred to was submitted for the record:]

National Missile Defense

3 + 3 Deployment Readiness Program



The Capability Ultimately Deployed Is Greatly Enhanced by Our Understanding of

- The Threat
- Time to Deploy the System

Deployment Options Will Be Triggered by the Threat

Mr. SPRATT. Dr. Kaminski, would you clarify that now? Is it $5 billion aggregate funding from what point in time to what point in time?

Mr. KAMINSKI. That would be associated just with the deployment phase, and Mr. Spratt, I give that number just generically because there is still some range of numbers, and we have not pinned that down precisely in our defense acquisition cycle. I wanted to give you just a general illustration. It is in the $5 to $7 billion range.

Mr. SPRATT. And that is all up aggregate cost to go of fielding a system with about 20 operational interceptors ground-based?

Mr. KAMINSKI. Yes, sir, that is right.

Mr. SPRATT. Ground-based radar [GBR] and——

Mr. KAMINSKI. Fielding this very thin capability, a GBR kind of system. And then I show notionally that over time if one did not field the capability, that is if the threat did not warrant it, we would continue down the light blue, improving the capability that could be fielded so that when we see a more advanced threat, you have the ability once again to get on one of the dark lines and field the capability that would come later, but it would be a more capable system. And our issue here, our approach to this program, is to field the capability that is commensurate with the threat. We believe it is prudent to move from the posture that we are in today, where we are at best 6 years away from fielding the capability, to move to 3 years away from fielding the capability.

We believe we will have adequate visibility associated with the progress of the threat to be able in 3 years to react. Our rationale for doing this is that so much of the debate has focused on the win you deploy. I believe a fair amount of debate has to be focused on what it is you are defending against because it makes a big difference on what you end up deploying. There is a whole variety of capability associated with reentry vehicles from very limited capabilities associated with rogue nations to very advanced capabilities associated with more advanced nations. And these are part of the issues we have to work ourselves through in the program. So what we are trying to do here is advance the ball to get to a position where we are 3 years away from deploying a useful but thin capability, and then be able to move out on one of these arrows as the threat warrants for us to do.

If I might have the next chart, please. Also, Mr. Chairman, I pointed out that we need to be doing more on cruise missile defense as well to put this in context, and there are many initiatives outside of ballistic missile defense that will improve our ability here of sensors and platforms to counter advanced cruise missiles. Our problem here, the different piece of the problem for advanced cruise missiles, is that we need to get our sensors up in the air. These cruise missiles fly at low altitudes. Many of the missile systems that we have would be useful in firing against the cruise missiles. Our problem is detecting them at enough range and to be able to tie together the guidance schemes to make this all work.

[The information referred to was submitted for the record:]

Cruise Missile Defense

Initiatives Outside of BMD Will Improve Ability of Sensors, Platforms, and Weapons to Counter Advanced Cruise Missiles

Most TMD Sensors, BM/C^3, and Weapons Are Also Capable Against Cruise Missiles-- Especially PAC-3, Navy Area Defense and MEADS

NMD BM/C^3 Architecture Will Be Designed to Promote Interoperability and Evolution to a Common BM/C^3 System for BMD and CMD

So as the second bullet said, many of our sensors, our battle management command and control and weapons, are capable here. What we need is an architecture that pulls this all together and we do need the deployment of some advanced sensors, both airborne, perhaps aerostat, sensors, to do this job, to pull together a workable scheme, and I predict this problem is going to be growing in importance here as we proceed in the years ahead.

The next chart, please. We also need to be focused and pulling here for the long term. So we need a technology-base program. You have been supportive in providing funding for this program, and it needs to continue to provide the means to enhance and to pull this all together over time. It underpins both theater missile defense and national missile defense, and it provides us a path to deal with two issues: operational effectiveness over time as the threat advances and affordability. We need to use some of our technology to reduce the cost of the systems in both their development and the operating costs associated with keeping these in the field and maintaining them as we proceed.

[The information referred to was submitted for the record:]

BMD Technology Base

Key To Countering Future, More Difficult Threats

Underpins Both TMD And NMD

- Enables Block Upgrades to Baseline Systems
- Performs Technology Demonstrations to Reduce Risk and Speed Technology Insertion
- Advances Basic Technologies to Provide Hedge Against Potential Future Threats

Concepts for a UAV/Kinetic Energy Interceptor BPI Capability (Backup to Airborne Laser)

Maintain Space-Based Laser Effort For Possible Long-Term BPI Solution

We have some hedges here in our technology-base program. For example, I believe it is important to deal with the submunition threat that I illustrated to you so we have a backup to our airborne laser program should we run into some problems, should we not be able to demonstrate the beam propagation I talked about. Here we are spending just a small amount, about 10 million per year, on a unmanned air vehicle/kinetic energy interceptor program, to give us boost phase intercept. And we are maintaining a technology base for a longer term space-based laser effort which would be a very major program, but it is a fundamental counter to the submunition problem I described.

If I might summarize our program, and then I would like to make one comment on the arms control, but summarizing our program, Mr. Chairman, I believe I have described to you what is an important and serious program that indicates ballistic missile defense really is a priority for this Department. The program adjustments that we have made in coming forward with our 1997 program, I believe, responded in the best way that I could at looking at the progress of the threat, looking at our technical progress and working with the hit-to-kill systems, dealing with affordability, and dealing with what you asked us to do in the law. We have fully funded our lower tier systems in TMD. As I did our review in coming forward with our 1997 budget, I was actually looking to reduce expenditures in this field. I ended up adding over $300 million to those two Lower Tier systems to make them whole. I did that because I told you and I believe that the threat is here now, and we need to respond to it. So those two programs are whole.

[The information referred to was submitted for the record:]

Ballistic Missile Defense
Summary

Ballistic Missile Defense Is a National Security Priority

BMD Program Adjustments Made in Response to Changes in Threats, Technical Progress, Affordability and the Law

- TMD
  - Fully Funds Lower Tier Systems
  - Phased Deployment of Upper Tier Systems, Leveraging NMD Technologies
- NMD
  - Shift Focus To Deployment Readiness
  - Develop within 3 Years, Elements of an Initial System that Could Be Deployed within 3 Years of a Decision
- Technology Base - Focus Technologies To Counter Future Threats

Cruise Missile Defense - Integrated Through BM/C^3 and Sensors

We have a phased deployment for the reasons I described of our upper tier systems. The pace at which we field the THAAD system is affordability issue. The money that we move from the program in the out-years is funding that can be readdressed and be restored.

Mr. WELDON. Can you repeat that again, Dr. Kaminski?

Mr. KAMINSKI. The issue associated with fielding of THAAD beyond the UOES, that is getting to a full operational capability, really is an issue that is driven not so much by technology but by affordability. It is what amount of funding will we have in the out-year budget, and at what pace will we field that capability. We are looking at that program right now to——

Mr. WELDON. Would you let the public affairs office at the Pentagon know that, Dr. Kaminski?

Mr. KAMINSKI. Mr. Chairman, I have spoken with them, and I do not know why the miscommunication. The issue I want to really home in on here is that the pace of getting to UOES on THAAD is not dollar-limited. We are moving at that program in a way that I believe is constrained by technology. Once that capability is developed, the rate at which we buy those systems to field, that is an issue of how much money do we want to spend for the program. That is an issue in which I think we have allowed room for the Congress to review what we have provided and you obviously have had the freedom to change those numbers in the out-years.

And, in fact, we are responding to what has been added in that program to look at sensibly now at should we restructure this program in some way. That review is underway as we speak to look at what the appropriate full unit equipage date for THAAD should be.

I described our National Defense Program. Prior to 1997 we had a deployment readiness program. What we have now is a serious 3-plus-3 program which is taking us to the point of being 3 years away from the ability to deploy a program. And we have a technology-base program, which I believe we need to continue to address both the issue of military effectiveness over time and affordability of this system. Finally, a program in cruise missile defense, which we are now working to bring together in a bigger way.

The last comment I would like to make, Mr. Chairman, if I can, is on the arms control agreement. These Theater Missile Defense programs are going forward without ABM Treaty constraints on the capabilities that we believe are necessary to meet these TMD requirements. As we have previously informed the Congress, we have certified the compliance of the Patriot, the Navy area defense, the Navy theater wide systems, and the dem/val flight phase of the THAAD system. DOD will make any further compliance assessments that are necessary for our TMD systems at the appropriate points in these programs.

For example, as we indicated to you in previous testimony, we are at such a decision point in the THAAD Program. The timing is determined by the structure of the program's contracts. We have now determined that we can proceed with the THAAD Program as planned including both the UOES system and the objective system consistent with the ABM Treaty. Previously, the THAAD UOES

had been certified as compliant only through the dem/val flight test program, and we had not formally reviewed the objective system.

We have recently completed the analysis of both systems. The THAAD system design has been adjusted since 1993. I think we described to you, and General O'Neill described to you the whole background for our UOES-plus system for operational deployment. While both the UOES and the objective system continued to meet TMD requirements, we have determined that neither system, as currently planned, will have capabilities to counter strategic missiles. Therefore, they are free to proceed. With this determination on THAAD, DOD has now certified as treaty compliant all current U.S. TMD Programs that have matured to a point where it is possible to assess compliance. These programs will proceed without any ABM restrictions on their intended capabilities for theater missile defense. We will, of course, review for compliance purposes any changes to these programs in the future.

As the committees are aware, the United States has negotiated with Russia and other newly independent states a draft-agreed statement on demarcation. On September 23 of this year Secretary of State Christopher and Foreign Minister Primakov announced that this agreement will be signed by the end of October. The demarcation agreement records a clear understanding among ABM Treaty partners that TMD systems whose interceptor velocity does not exceed 3 kilometers per second are compliant with the treaty. The agreement will thus preclude any disputes about the compliance of current and future lower velocity TMD systems. The important point here is that this agreement is without prejudice to the compliance of higher velocity TMD systems which will be addressed in the subsequent agreement.

In the meantime, compliance determinations for high velocity TMD systems will remain a national responsibility just as they have been in the past. So, in this regard, it is important to realize that the Navy Theater Wide Program has been certified as treaty-compliant. The demarcation agreement that we expect to be signed next month is entirely compatible with and supportive of our TMD programs, and so it is in this spirit that I gave my interpretation that this demarcation agreement is not limiting anything we are doing. What it has done has opened up the door to any issues that might have been raised about the lower velocity systems. It has given them a free path. It has not changed anything that we have done or a compliance review that we will be doing with the faster systems. Mr. Chairman, that concludes my statement.

Mr. WELDON. Thank you.

[The prepared statement of Mr. Kaminski follows:]

Embargoed Until Released by the
House Committee on National Security

Statement of

The Under Secretary of Defense for Acquisition and Technology
Honorable Paul G. Kaminski

Before a Joint Session of the
Subcommittee on Military Research & Development
and the
Subcommittee on Military Procurement
of the
House Committee on National Security

on

Ballistic Missile Defense

September 27, 1996

Embargoed Until Released by the
House Committee on National Security

Mr. Chairmen, members of the committees, and staff, thank you for the opportunity to discuss with you the Department's Ballistic Missile Defense (BMD) program. For all of our adult lives, most Americans have lived with a dark cloud hanging over our heads--the horrific threat of a nuclear war that would end our way of life and civilization as we know it. Now, with the end of the Cold War, that dark cloud is beginning to drift away. The whole world is breathing a little easier.

But that cloud is not yet gone. The world's nuclear powers still hold thousands of nuclear weapons, along with many hundreds of missiles to deliver them. And many other countries, some of them rogue nations to which the calculus of deterrence may not apply in the same way, are acquiring the means to deliver weapons of mass destruction--nuclear, biological, and chemical. Many of these nations have obtained ballistic missiles--short-range ballistic missiles--and some are in the process of acquiring longer-range ballistic missiles and cruise missiles.

The proliferation of short-range ballistic missiles in the world today poses a direct, immediate threat to many of our allies and to some U.S. forces deployed abroad in defense of our national interests. Over time, the proliferation of longer range missiles will pose a greater threat to the U.S. itself. For these reasons, active defenses are playing a central and vital role in U.S. defense planning well into the next century. The

resource-constrained environment of the nineties, together with the complex nature of the security challenges facing us, requires that we deploy the right capabilities at the right time for achieving the highest overall level of security for the United States.

To do so we must consider the role of missile defense within the nation's broader national security strategy. Active defenses can never be considered in and of themselves a panacea for countering the proliferation of ballistic missiles and weapons of mass destruction. We have a broader strategy encompassing a full range of tools in a national "kit" of options. Our strategy has three components: preventing and reducing the threat; deterring the threat; and defending against the threat.

For example, we have adopted the Non-Proliferation Treaty, the Framework Agreement with North Korea, the INF Treaty, the MTCR, and export controls as ways of preventing or reducing the threat to our allies and U.S. forces deployed abroad. The threat to the United States has been reduced significantly through the START treaty, and it will be reduced even further through the START II treaty when Russia ratifies it. Additionally, we have an extensive program for actually dismantling the warheads and the missiles that had been directed against us in a Cooperative Threat Reduction (CTR) program supported by Nunn-Lugar funds. This is our first line of defense against ballistic missiles and weapons of mass destruction--preventing and reducing that threat.

The second line of defense is deterrence. In the case of the long-range missile threat to the United States, either from land-based intercontinental ballistic missiles (ICBMs) or submarine-launched ballistic missiles (SLBMs), our strategic nuclear forces have been a bulwark of deterrence for nearly a half-century. That will continue. We have smaller numbers of nuclear forces now than we did a decade ago, but they are still very powerful and quite capable of carrying out the strategic deterrence mission. In the case of deterring short-range missile threats, our theater nuclear forces and very

powerful conventional forces provide some level of deterrence against limited nuclear attacks.

To the extent that these first two components, reducing the threat and deterring the threat, are not fully successful, we have to be prepared to defend directly against a threat. In the case of the strategic ballistic missile threat to the United States from rogue states or from accidental/unauthorized launch, the National Missile Defense (NMD) program is America's ultimate insurance policy. For our deployed forces, we are developing and fielding multi-tier theater missile defenses to counter regionally-oriented missile attacks.

THE THREAT

The theater threat to our allies and U.S. forces deployed abroad is real and growing. We saw it demonstrated in the Gulf War. Besides Iraq, we know there are many ballistic and cruise missiles in many countries. Many thousands of short-range missiles are deployed today with hundreds of launchers in as many as 30 different countries--some of these countries are quite hostile to the United States. This threat is here and now. It is widely dispersed, and it has to be taken very seriously.

In addition to the short-range missile threat, we see a medium-range threat emerging. Some nations are developing their own medium-range missiles; in particular, North Korea is developing the No Dong missile. Other nations, some of them rogue, are buying these missiles or trying to buy them. Iran is a case in point.

We also have a threat today from missiles armed with chemical and biological warheads. We believe that Iran, North Korea, and Libya all have extensive chemical weapon programs. In addition, we anticipate a nuclear threat being possible in the

future. We know in retrospect that Iraq was very close to an operational nuclear capability at the time they started the Gulf War--fortunately, they were not all the way there. We know that North Korea was close last year. But their program is now stopped by the Framework Agreement. And we understand that Iran is working to achieve a nuclear weapons capability, but we believe they are many years away. We will keep a close eye on the nuclear threat from so-called rogue nations armed with theater ballistic missiles.

In the case of nuclear strategic weapons, Russia has a significant capability for delivering these weapons with strategic weapon delivery systems--land-based and submarine-launched missiles and long-range aircraft. China can also deliver these weapons with land-based and emerging sea-based ballistic missile capabilities. We do not see these systems as posing a threat to the United States in the foreseeable future. That is, we do not see an intent that goes with the capability. Even should that situation change, we will continue to field a significant U.S. deterrent force.

Land-attack cruise missiles (LACMs) are an emerging threat. LACMs are deployed in the U.S., France, and Russia. A dozen or so other countries are also developing this capability. We believe the nations of most concern are now more focused on short-range ballistic missiles, and the widespread proliferation of high-tech LACMs is 10-15 years away. However, there is already a widely deployed robust threat of anti-ship cruise missiles in about 70 nations, and these could be modified to provide a limited land-attack capability.

We do not see a near-term ballistic missile threat to U.S. territory from the so-called rogue nations, but we cannot be complacent about this assessment. The threat of long-range missiles from rogue nations could emerge in the future. The Intelligence Community estimates that this threat would take 15 years to develop, but could be

accelerated if those nations acquired this capability from beyond their borders. This is why our counter-proliferation programs are important and why the role of missile defense within this broader national strategy must be carefully integrated into U.S. defense planning. This is also why our proposed "three-plus-three" NMD program could be deployed as early as 2003—eight years ahead of the intelligence community estimates.

BMD PROGRAM

Over the last year, the Department's missile defense programs have been criticized from two different directions. Some members of Congress have criticized the Department for spending too much money on missile defense; others believe we are not spending enough. Some have criticized the Department because we are moving the programs too quickly. Some think we are not moving the programs quickly enough.

Additionally, the Department's Joint Requirements Oversight Council (JROC) determined that our BMD program was funded at a level too high compared to other higher-priority, pressing modernization and re-capitalization needs; and that we were not focused sharply enough on dealing with the here-and-now threat.

To meet our oversight responsibilities, each of our acquisition programs is reviewed to determine its progress against the Acquisition Program Baseline and to insure the program, as planned, continues to meet the Department's requirements. Program adjustments may be made in response to a number of factors, including changes in the requirement, threat, technology, funding or law. Where appropriate, such adjustments are then reflected in our funding request through the President's budget.

In light of the views of Congress and the JROC, and in order to meet our responsibilities for oversight, the Secretary of Defense decided we needed to look intensively into the Department's whole set of missile defense programs and look to restructure the program portfolio to recover funds for other modernization priorities. We completed such a review last February and have identified what I believe is a more balanced missile defense program than the one we proposed last year in the fiscal year 1996 budget request—one that is more affordable, with better prospects for successful execution. It is also better matched to the missile threats we will be facing. Our program does make use of all of the funds that were appropriated for fiscal year 1996 for missile defense—both the funds that were requested by the President, and the funds that were added by the Congress.

Our review reaffirmed the fundamental priorities in our missile defense program. The first priority is to defend against theater ballistic missiles and cruise missiles. Within the theater missile defense (TMD) mission area, the review broke some new ground on defining the underlying sub-priorities. The first sub-priority is to field systems to defend against the existing short-to-medium-range missiles--our lower-tier TMD systems. The next sub-priority is to proceed at a prudent pace to add upper tier TMD systems for wide area defenses and defenses against the longer-range theater missiles as that threat emerges.

Our second priority is to develop a capability to defend against Intercontinental Ballistic Missiles--our National Missile Defense program--and the cruise missiles which may threaten the United States in the future.

Finally, our third priority is developing a robust technology base to underlie these two programs---both the TMD program and the NMD program--to be able to

develop and deploy more advanced missile defense systems over time as the threat systems they must counter become more advanced.

THEATER MISSILE DEFENSE

For our number one priority--Theater Missile Defense, two systems are currently fielded--the Marine Corps Hawk system and the Patriot Advanced Capability (PAC) 2/Guidance Enhanced Missile (GEM) system. The Hawk capability is very limited. However, the PAC-2/GEM system contains a guidance upgrade that significantly improves the lethality and coverage of the basic PAC-2 system used in combat during Desert Storm.

Although the PAC-2/GEM system provides a more robust capability than the Patriots we deployed in Desert Storm, it is still not fully capable of dealing with the threat. The lower-tier systems I'll describe next will have that capability, and these systems have our highest priority for fielding as soon as they are ready.

Lower-Tier Systems

Our lower-tier systems build on existing infrastructure and prior investments in on-going programs--extending the capability of the Patriot and Aegis/Standard Missile systems; and improving our Battle Management/Command, Control, and Communications (BM/C3) capability. We have also begun a cooperative program with our allies, the Medium Extended Air Defense System (MEADS), which is a highly mobile system intended to provide our maneuvering forces with a 360-degree capability against both ballistic and cruise missiles.

The PAC-3 and the Navy Area Defense (NAD) system, will give us our core lower-tier capability. Neither of these programs involves a significant technology risk at this point. The risks ahead for these programs are related to program execution. Our task is to ensure that we have a robust program to proceed with both systems and to field this capability as early as possible.

PAC-3

PAC-3 is a much more capable derivative of the PAC-2/GEM system in terms of both coverage and lethality. The PAC-3, in fact, has a new interceptor missile with a different kill mechanism--rather than having an exploding warhead, it is a hit-to-kill system. During the BMD Program review, we found that the PAC-3 program had a high degree of risk for completion. There were some fact-of-life slips in the schedule, and the program was not funded at a level commensurate with our near-term priority to field a robust capability.

Even though a major objective of the review was to reduce the missile defense budget, we added about $240 million for the PAC-3 through the Future Years Defense Program (FYDP) and established a realistic schedule to lower the program execution risk by extending the engineering and manufacturing development (EMD) phase of the program by ten months. System performance will be improved by re-phasing the missile and radar procurements; upgrading four launchers per battery with Enhanced Launcher Electronics Systems; and extending the battery's remote launch capability.

We had originally planned to upgrade all of the Patriot fire units with the PAC-3 system. We decided, instead, to defer the upgrade of three battalions pending availability of the Medium Extended Air Defense System (MEADS). PAC-3 Low-Rate

Initial Production (LRIP) will begin in the first quarter of fiscal year 1998, and the First Unit Equipped (FUE) date is planned for the fourth quarter of fiscal year 1999.

Navy Area Defense

The second of the lower-tier systems, the Navy Area Defense (NAD) system, consists of Standard Missile-2 Block IVA interceptors deployed aboard Aegis ships. The capability provided by this system has the advantage of being able to be brought into theater quickly without having to put forces on land.

We have executability risks in the Navy program similar to those in the PAC-3 Program. We added about $120 million to this program through the FYDP to make the program fully executable on a moderate risk profile. These funds will cover delays in risk-reduction flights and adjusted cost estimates for test targets and lethality efforts. This will allow us to proceed expeditiously with the EMD program and LRIP missile procurement.

We are continuing to emphasize the rapid and robust fielding of this core TMD program. We plan to field a User Operational Evaluation System (UOES) capability on two cruisers in fiscal year 2000, with first unit equipage in fiscal year 2002.

MEADS

The last of the lower-tier systems is the Medium Extended Air Defense System (MEADS), formerly the Corps SAM program. MEADS is the only Theater Missile Defense (TMD) system under consideration which will provide maneuver forces with 360 degree defense protection against the real and growing threat of short-range tactical ballistic missiles, cruise missiles, and unmanned aerial vehicles. This system will

provide fundamental enhancements in tactical mobility, strategic deployability, and operational capability. MEADS is a highly mobile system that is designed to protect our forward deployed and maneuvering forces. It will be transportable on C-130 aircraft. This system would replace Hawk, and would ultimately replace Patriot. As discussed above, we will defer equipping three Patriot battalions with PAC-3 pending a decision on development and deployment of MEADS.

We have signed an MOU on this program with Germany and Italy, and NATO has formed a project agency that has started work in Huntsville, Alabama. We plan about $115 million over the FYDP to fully fund the U.S. costs of the Project Definition/Validation phase. We are working to be ready to make a decision to enter development in fiscal year 1998. The 1997 Defense Authorization Act authorizes the full amount requested for this fiscal year. The Senate Defense Appropriation mark fully funds the program as well. The Department of Defense urges the Appropriation Conference to recede to the Senate mark. The impact of reduced funding on the program would be significant, causing a delay in contract award and performance.

Upper-Tier Systems

Our second theater missile defense priority is the upper-tier systems. These systems are necessary to defeat longer-range ballistic missiles, to defend larger areas, and to increase effectiveness against weapons of mass destruction.

The Department's plan for upper-tier systems includes the development of the Theater High-Altitude Area Defense (THAAD) system for our ground forces. In addition, our upper-tier approach moves the Navy Theater Wide (NTW) System from the status of a candidate program to a concept definition and technology demonstration

program with an established funding line. We are also pursuing a boost phase intercept capability with the continued development of the Airborne Laser (ABL) system.

THAAD

The THAAD system will provide extended coverage for a greater diversity and dispersion of forces and the capability to protect population centers. But the principal additional capability provided by this system is the ability to deal with longer-range theater missile threats as they begin to emerge. THAAD also reduces the number of missiles that the lower-tier systems must engage and provides us with a shoot-look-shoot capability--the ability to engage incoming missiles more efficiently.

THAAD is the most mature upper-tier system. In the past year, we made a significant adjustment to this program, holding our schedule to have ready an early contingency capability, but making out-year adjustments to focus on the nearer-term threat, reduce technical risk, and lower the rate of investment.

We kept in place the UOES concept and schedule. This will enable us to deploy an initial limited THAAD UOES capability late in 1998 should a contingency arise. The final UOES capability would include about 40 missiles and two radars, which would be used for user testing, but which could be maintained in theater if needed. Recent testing difficulties have exhausted the remaining margin on this program and have added considerable risk to our ability to hold the 1998 date. For this reason, I have asked the BMDO Director to report back to me on program options for addressing the THAAD UOES capability.

We made a conscious decision to keep the UOES portion of the program on track, but we restructured the rest of the program for the objective THAAD system.

During the review, we confirmed it was not likely, due to the extent of system engineering risk in the program, that we could achieve a THAAD first unit equipped until fiscal year 2003 or 2002 at the very earliest. We further delayed the production ramp-up and First Unit Equipped by constraining the funding as part of out effort to balance investment priorities.

The THAAD system to be initially developed and deployed will have a "UOES+" capability, a better version of the UOES system, but with somewhat less capability than the previously planned THAAD objective system. We applied our cost-as-an-independent-variable (CAIV) approach to look at the enhancements for the objective system, what they cost and what they bought us. We concluded that the UOES+ will meet the most important THAAD warfighting requirements at a substantially reduced cost.

The UOES+ program will militarize the UOES design and upgrade certain components, such as the infrared seeker, the radar, and the BM/C3. Our current schedule for this program is to begin LRIP in fiscal year 2003, with a FUE in fiscal year 2006. However, we are currently considering whether we might be able to afford some recovery of the FUE date, perhaps to 2004. We still have a significant system engineering challenge; the fact that recent THAAD flights did not meet all of their objectives, stretching out testing and delaying the start of EMD by four months, illustrates the difficulty of this task.

NTW

The Navy Theater Wide system is projected to add the same generic kind of upper-tier coverage capability as the THAAD system, again providing longer-range coverage and protecting a wider area. This system also offers ascent-phase intercept

capability in cases where the Aegis ship can be positioned near the launch point, and between the launch point and the target area.

The Navy Theater Wide system is less mature than the THAAD system. Prior to the review, we were proposing funding this program in our fiscal year 1996 and 1997 budgets at a low level ($30 million per year) to mature the key enabling technologies. We have restructured this program to begin technology demonstration and concept definition this fiscal year, adding about $570 million through the FYDP.

This structured program responds to the need to proceed at a prudent pace as the threat emerges, the lack of maturity of the technology, and the need to further develop the system concept to enhance robustness. There is also the opportunity to apply technology being developed for national missile defense to the NTW system. Likely areas of technology synergy include advanced sensors and seeker, propulsion, stabilization, and the underlying phenomenology. The program faces significant technology as well as engineering challenges. In particular, since the lead kinetic kill vehicle is not yet mature, we need to better understand kill vehicle alternatives before committing to full-scale development. A Lethality Improvement Program has been initiated to evolve the kill vehicle to a robust capability. Planned modifications to the SPY-1 radar will provide the fire control sensor capability needed to meet operational requirements.

Boost-Phase Intercept

We are working on several approaches for fielding a Boost-Phase Intercept (BPI) capability against theater ballistic missiles. The Air Force Airborne Laser (ABL) is now a Major Defense Acquisition Program funded at $963 million over the fiscal 1997 to 2001 time period. The ABL will be able to engage tactical ballistic missiles (TBMs) early,

while they are still over the enemy's territory. This will provide a valuable deterrent, since the enemy faces the possibility of his missile falling onto his own territory. The Program Definition and Risk Reduction (PDRR) program addresses the remaining risk of integrating a number of proven technologies onto the aircraft. We are planning to culminate the PDRR program in fiscal 2002 with the destruction of a boosting TBM. If successful, the PDRR aircraft would then have residual operational capability, and could be deployed when required (similar to the Joint STARS deployment during Desert Storm). In parallel, the Ballistic Missile Defense Organization (BMDO) has funded studies to refine the concept for an Unmanned Aerial Vehicle (UAV) with a kinetic energy interceptor (at a rate of about $10 million per year in fiscal years 1997 and 1998). This level of investment is sufficient to support a back-up path should problems develop with the airborne laser approach.

BM/C3

Interoperability in BM/C3 is essential for successful TMD operations. A capable, joint, interoperable BM/C3 underlies the three pillars of TMD, improving the effectiveness of active defense, passive defense, and attack operations.

We are actively pursuing three avenues to ensure effective BM/C3. These are: improving early warning and dissemination, ensuring communications interoperability, and upgrading command and control centers for TMD functions. From the joint perspective, BMDO oversees the various independent weapon system developments and provides guidance, standards, equipment and system integration, and analysis to integrate the sensors, interceptors, and tactical command centers into a joint, theater-wide TMD architecture. BMDO also conducts tests and demonstrations with the Commanders-in-Chiefs (CINCs) to verify this architecture meets the requirements and supports the warfighters' needs.

These BM/C3 initiatives provide several benefits to active defense. Effective BM/C3 conserves the number of interceptors required by improving weapon system fire distribution and coordination and through sensor fusion. It provides multiple information paths between sensors, shooters, and control locations to combat sensor outages and jamming. BM/C3 weapon cueing information also increases battlespace and depth of fire, improves defense against long-range threats, and increases the defended area. For attack operations, BM/C3 helps locate the threat and improve probability to shooting the shooter first. BM/C3 also supports passive defense measures by providing greater early warning and faster reaction times.

This integrated BM/C3 architecture also sets a foundation for other BM/C3 intensive initiatives, such as cruise missile defense. Finally, the improvements to the architecture, procedures, and interoperability pay direct dividends in all warfighting areas.

The Department plans to spend about $200 million per year on enhancements to the battle management/command, control, and communications (BM/C3) capabilities of our theater missile defense forces. This amount includes "embedded funding" in the Patriot and Aegis programs. It also covers the amount required for the Department's TMD C3 core programs, such as the ADA Brigade Upgrades; JTIDS procurement and TBM platform integration; datalink standards; Combat Information Center (CIC) upgrades; and TIBS/TDDS integration.

NATIONAL MISSILE DEFENSE

The Department's second overall missile defense priority is National Missile Defense. Our intended program is to position the United States to respond to a

strategic missile threat as it emerges. We have shifted our national missile defense emphasis from a technology readiness program to a deployment readiness program.

Secretary Perry in his testimony last year described a "three plus three" program under consideration by the Department at that time. By moving from a technology to a deployment readiness posture, we have made the decision to proceed with the first three years of the "three plus three" program that Secretary Perry described. Under this approach, we plan to develop and begin testing elements of an initial NMD system and preserve thereafter a capability to deploy within three years. If after three years we encounter a threat situation that warrants deployment, then an initial operational capability (IOC) for an NMD system could be achieved in another three years, by 2003.

To implement this approach, the Department is spending the additional $375 million added by the Congress in the fiscal year 1996 appropriation over two years to initiate the NMD deployment readiness program. As a result, we will be spending more on NMD early in the 1996-2001 FYDP and less later. We have increased our budget in NMD by about $100 million per year in both 1997 and 1998. We plan to reduce our funding for NMD by a commensurate amount in the out years of the FYDP--so the net change for NMD funding over the 1997-2001 FYDP ends up being about zero. Once the NMD technology base is built up over the next three years, the NMD deployment readiness posture can be sustained at a reduced funding level.

This approach enhances the technological foundation of our NMD program in two ways: (1) the performance of the National Missile Defense we would deploy will be considerably improved over time; and (2) the timeliness of response to field an operational capability to counter an emerging threat will be shortened from six years to three years. If the decision is made to deploy an NMD system in the near term, then the system we could field in 2003 would provide a very limited capability. If we can avoid deploying a system in the near term, we will continue to enhance the technology

base and the commensurate capability of the NMD system that could be fielded on a later deployment schedule.

The goal here is to be in a posture to be three years away from deployment, so that we can respond to the emergence of a threat. It does not make sense to make a deployment decision in advance of the threat, because we would be making investments prematurely, resulting in a system that would be less capable when it is really needed. In the absence of a threat, it is more sensible to continue to enhance the capability of the system that could be deployed when it is needed. This approach fields the most cost effective capability that is available at the time the threat emerges.

The development program that will be executed over the next three years will be compliant with the existing ABM Treaty. The system that is ultimately fielded, should a deployment decision be made after three years, might comply with the current Treaty, or might require modification of the Treaty, depending on what the threat situation required. Decisions about the Treaty compliance of potential NMD systems would be made by the Department of Defense. At this point, it is important to underscore that there is no commitment today to deploy an NMD capability. The funds to deploy an NMD system are not in the Department's Budget.

The Department plans to test a Ground-Based Interceptor (GBI) Exo-atmospheric Kill Vehicle (EKV) in fiscal year 1998 and conduct the first integrated system flight test of a ground-based interceptor, prototype ground-based radar (GBR), upgraded early warning radars, and improved BM/C3 in fiscal year 1999.

The Air Force is funding development of the Space and Missile Tracking System (SMTS) as the low-earth orbit (LEO) component of the Space-Based Infrared System (SBIRS). SBIRS provides a broad range of support to both TMD and NMD, as well as technical intelligence and battlespace characterization of non-ballistic missile targets.

SMTS will provide a unique mid-course tracking capability of missile targets which will allow greatly improved cueing of interceptors, and far more accurate determination of launch position and impact points than is currently possible. SMTS will also have unique capabilities for space surveillance and intelligence collection.

The SMTS program currently consists of two competing contractor teams. Hughes/TRW is developing a two-satellite Flight Demonstration System (FDS); Rockwell/Lockheed-Martin a single-satellite Flight Experiment, with both programs launching in late FY99. These risk-reduction satellites will serve as a "bridge" to a fully operational SMTS next century. We are currently considering whether we might be able to afford some recovery of the schedule for an EMD phase of SMTS, perhaps with a first launch in FY04. The technical, management, and programmatic aspects of an FY04 deployment are being developed for a Defense Acquisition Board (DAB) review in April 1997.

CRUISE MISSILE DEFENSE

Many TMD sensors, BM/C3, and weapons also have an effective capability to counter the growing land-attack cruise missile threat. In particular, the lower-tier PAC-3, Navy Area Defense, and MEADS systems operate in the same battlespace and will have capability against cruise missiles. In addition, the NMD BM/C3 architecture will be designed to promote interoperability and evolution to a common BM/C3 system for ballistic and cruise missile defense.

The Department also has a number of initiatives outside the BMD program to improve the ability of U.S. forces to detect and defeat cruise missiles "in theater" or launched against the United States. These initiatives include advanced technology sensors to detect low observable cruise missiles; upgrades to existing airborne platforms

to improve over-the-horizon detection capability against cruise missiles; an Advanced Concept Technology Demonstration (ACTD) of a new aerostat sensor platform; and upgrades to existing missile interceptor systems.

TECHNOLOGY BASE

The last element of the Department's Ballistic Missile Defense program is the technology base. This program underpins both the TMD and the NMD programs by continuing to advance our capability to counter future and possibly more difficult threats. The BMD technology base allows us to provide block upgrades to our baseline systems, to perform technology demonstrations for reducing risk and providing a path to speed technology insertion, and to advance some of our basic underlying technologies to provide a hedge against future threats--including research into advanced concepts, such as directed energy systems capable of global coverage.

ARMS CONTROL AGREEMENTS

Our theater missile defense (TMD) programs are going forward without ABM Treaty constraints on the capabilities necessary to meet TMD requirements. As we have previously informed the Congress, we have certified the compliance of the Patriot, Navy Area Defense, and Navy Theater Wide systems and the dem/val flight test program of the THAAD system. DoD will make any further compliance assessments that are necessary for U.S. TMD systems at the appropriate points in their programs.

For example, we are at such a decision point in the THAAD program. The timing is determined by the structure of the program's contracts. We have now determined that we can proceed with the THAAD program as planned, including both the UOES and objective system, consistent with the ABM Treaty. Previously, the

THAAD UOES had been certified as compliant only through the dem/val flight test program, and we had not formally reviewed the objective system. We have recently completed analysis of both systems. The THAAD system design has changed since 1993, when we made an initial compliance assessment, and THAAD's capabilities and limitations are better understood now. While both the UOES and the objective system continue to meet TMD requirements, we have determined that neither system, as currently planned, will have capabilities to counter strategic ballistic missiles. With this determination on THAAD, DoD has now certified as treaty compliant all current U.S. TMD programs that have matured to a point where it is possible to assess compliance. These programs will proceed without any ABM Treaty restrictions on their intended capabilities for theater missile defense. We will, of course, review for compliance purposes any changes to these programs.

As the Committees are aware, the United States has negotiated with Russia and other newly independent states a draft Agreed Statement on demarcation. On September 23, 1996, Secretary of State Christopher and Foreign Minister Primakov announced that this agreement will be signed by the end of October. The demarcation agreement records the clear understanding among ABM Treaty partners that TMD systems whose interceptor velocity does not exceed 3 km/sec are compliant with the Treaty. The agreement will thus preclude any disputes about the compliance of current—and future—lower velocity TMD systems. This agreement is without prejudice to the compliance of higher-velocity TMD systems, which will be addressed in a subsequent agreement. In the meantime, compliance determinations for high velocity TMD systems will remain a national responsibility. In this regard, it is important to realize that the Navy Theater Wide program has been certified as treaty compliant. The demarcation agreement that will be signed next month is entirely compatible with, and supportive of, our TMD programs and objectives.

With respect to the impact of the ABM Treaty on our national missile defense (NMD) program, DoD is considering various proposals for systems that would provide a limited defense of the entire United States against intercontinental range, or strategic, ballistic missiles. Systems to counter strategic ballistic missiles are considered ABM systems, and thus various provisions of the ABM Treaty would have to be considered. DoD will make formal ABM Treaty compliance assessments of the proposed systems as necessary once their designs have matured to a point where this is possible. However, the development program that will be executed over the next three years is expected to be compliant with the Treaty. The system components that ultimately would be fielded, should a deployment decision be made after three years, would depend on factors such as the threat, and might comply with the current Treaty, or might require Treaty modification. The current program is proceeding, however, in the expectation that a deployment of up to 100 Ground-Based Interceptors would be Treaty compliant.

As the Committees are aware, the United States has also negotiated with Russia and other newly independent states a draft Memorandum of Understanding on succession, which establishes a process through which successor states to the former Soviet Union can become Parties to the ABM Treaty. The draft agreement does not address, and so has no direct impact on, U.S. TMD and NMD systems. With respect to potential indirect impacts -- such as on future negotiations for modifications to the Treaty -- there is no reason to believe that additional Treaty Parties would necessarily preclude attainment of our objectives or otherwise adversely affect our ballistic missile defense programs. The successful negotiation of the demarcation agreement underscores the possibility of achieving mutually acceptable outcomes in adapting the ABM Treaty to new realities.

SUMMARY

In summary, the Department is committed to protecting the United States, including U.S. forces deployed abroad, and our allies against ballistic missile, cruise missile, and weapons of mass destruction threats. We have a comprehensive national security strategy for countering such threats, including preventing and reducing the threat; deterring the threat; and defending against it. Active defense against ballistic missile attack is an important component of that strategy.

Our BMD priorities remain as they were in the past and are reflected in the President's budget, which includes $13.5 billion across fiscal years 1997 through 2001. This represents about a $3 billion reduction from the baseline established by the President's fiscal year 1996 budget request, in order to support even higher-priority needs in other parts of the Defense budget. Our first priority, Theater Missile Defense, deals with the threat that exists today. The second priority is National Missile Defense. And the third priority is to support the underlying technology base.

I believe the program proposed by the Department responds to the threats and to the priorities expressed by the Joint Staff. The TMD program fully supports deployment of early operational capabilities for the high-priority lower-tier systems, and provides the ability to deploy upper-tier systems in response to the threat and the availability of funding for those systems.

Our NMD program shifts from a technology readiness posture to a deployment readiness posture. The development portion of the program will comply with the Anti-Ballistic Missile Treaty and enable the United States to develop within three years, elements of an initial NMD system that could be deployed within three years of a deployment decision. This approach would preserve thereafter a capability to deploy

within three years, while allowing the United States to continue the advancement of technology, add new elements to the system, and reduce deployment timelines.

The NMD system would have the purpose of defending against rogue and accidental/unauthorized threats. It would not be capable of defending against a heavy deliberate attack. The current program is proceeding with the expectation that a deployment of up to 100 Ground-Based Interceptors would be treaty compliant.

I am convinced that we have a BMD program that is balanced, affordable, and executable , and that is consistent with the priorities of the Joint Staff and warfighters.

Mr. Chairmen, thank you for this opportunity to appear before the Committees. I shall be happy to answer any questions you may have.

Mr. WELDON. General Ralston.

STATEMENT OF GEN. JOSEPH W. RALSTON, U.S. AIR FORCE, VICE CHAIRMAN, JOINT CHIEFS OF STAFF

General RALSTON. Mr. Chairman, I would request that I could submit my remarks for the record, and I would just like to make a few verbal remarks to supplement what Dr. Kaminski has said.

Mr. WELDON. So ordered.

General RALSTON. The committee has asked some questions about the Ballistic Missile Defense Program review that occurred last year and what role that the Joint Requirements Oversight Council [JROC] played in that. The missile defense issue is a delicate balance of threat, technology, and resources, and in the fall of 1995, the JROC commissioned a study to review the Theater Missile Defense Requirement. We sought to ensure that we were prioritizing our efforts correctly given the future years' budget picture, our other ongoing modernization requirements, and the missile threat that faced our commanders in the field. Retired Marine General Went and his team of distinguished experts reviewed the theater missile defense mission, and they based it on force protection and the projected threat in both the near and the long term.

Several recommendations emerged that could help the JROC maintain the balance required. The study identified a threat to our forces that required emphasis on the PAC–3 and the Navy area defense system, our lower tier systems that Dr. Kaminski has talked about, and the study recommended that we buy approximately 1,500 missiles for the lower tier defense. The study encouraged the services to equip all the emerging systems with the capability to network their systems together, creating a missile defense web, if you will, that makes the best use of our deployed assets.

Finally, the study encouraged the continued pursuit of the airborne laser program. The JROC provided their recommendations to Dr. Kaminski including a funded recommendation of $2.8 billion a year to reflect the priorities that have been discussed. I am sure the position of the JROC was considered along with the other ongoing OSD studies that led to the final results of the BMD review presented to Secretary Perry last February.

I would like to close by tracing how our requirements for national missile defense have evolved in the past few years. During our initial efforts in 1987 to identify the scope of our national missile defense requirements, the Joint Chiefs stated that we should seek a thoroughly effective defense that will protect the United States and its allies from the threat of attack from ballistic missiles of all ranges. At the time, the primary concern was the threat posed by the former Soviet Union. The U.S. Space Command developed the first strategic ballistic missile defense requirements to address the Soviet threat, and that requirement remained unchanged for about 5 years.

The requirements for National Missile Defense evolved as the challenges from the U.S.S.R. disappeared and new challenges emerged. No longer focused on a massive array of Soviet ICBM's, Space Command's requirements were redefined to consider the need for global protection against limited strikes or GPALS. GPALS sought protection against accidental launches and Third

World missile threats. And the JROC approved the shift in requirement strategy in 1992. By June of this year, enough data had been collected by the U.S. Space Command to realistically amend the requirements based on changes to the threat environment. The JROC validated this updated requirement last month.

With this committee's continued support, we look forward to achieving a reliable and enhanced theater missile defense capability and a national missile defense system capable of deploying in advance of projected rogue nation threats. Once again, Mr. Chairman, I thank you for the opportunity to appear today.

Mr. WELDON. Thank you, General Ralston.

[The prepared statement of General Ralston follows:]

AS DELIVERED

OPENING STATEMENT BY
GENERAL JOSEPH W. RALSTON
VICE CHAIRMAN OF THE JOINT CHIEFS OF STAFF
TO THE SUBCOMMITTEE ON RESEARCH & DEVELOPMENT
AND THE SUBCOMMITTEE ON PROCUREMENT OF THE
HOUSE COMMITTEE ON NATIONAL SECURITY
SEPTEMBER 27, 1996

Mr. Chairman I would request that I submit my remarks for the record. And I would like to make a few remarks to supplement what Dr. Kaminski has said.

You asked some questions about the ballistic missile defense program review that occurred last year and what role the Joint Requirements Oversight Council (JROC) played in that.

The missile defense issue is a delicate balance of threat ... technology ... and resources. In the fall of 1995, the JROC commissioned a study to review theater missile defense requirements. We sought to ensure we were prioritizing our efforts correctly, given the future years budget picture, our other on-going modernization requirements and the missile threat that currently faced our commanders.

Retired Marine General Went and his team of distinguished experts reviewed the theater missile defense mission based on force protection and the projected threat in

both the near and long term. Several recommendations emerged that could help the JROC maintain the balance required.

The study identified a threat to our forces that required emphasis on the PAC-3 and Navy Area Defense system, our "lower tier" systems that Dr. Kaminski was talking about. The study recommended we buy approximately 1500 missiles for the lower tier defense.

The study encouraged the Services to equip all the emerging systems with the capability to network with other systems, creating a missile defense "web" that makes the best use of the deployed assets.

Finally, the study encouraged the continued pursuit of the airborne LASER program.

The JROC provided their recommendations to Dr. Kaminski, including a funding recommendation of $2.8 billion a year to reflect the priorities that had been set. I am sure the position of the JROC was considered along with other on-going OSD studies that led to the final results of the BMD Review presented by Secretary Perry last February.

I would like to close by tracing how our requirements for National Missile Defense have evolved in the last ten years.

During our initial efforts in 1987 to identify the scope of our National Missile Defense requirements, the Joint Chiefs stated that we should seek a "thoroughly effective defense that will protect the United States and its Allies from the threat of attack from ballistic missiles of all ranges."

At the time ... the primary concern was the threat posed by the former Soviet Union. The United States Space Command developed the first Strategic Ballistic Missile Defense requirements to address the Soviet threat. And that requirement remained unchanged for about five years.

The requirements for National Missile Defense evolved as the challenges from the U.S.S.R. disappeared and new challenges emerged. No longer focused on a massive raid of Soviet ICBMs, Space Command's requirements were redefined to consider the need for Global Protection Against Limited Strikes, or GPALS. GPALS sought protection against accidental launches and Third World missile threats. The JROC approved the shift in requirements strategy in 1992.

By June of this year, enough data had been collected by USSPACECOM to realistically amend the requirements based on changes to the threat environment. The JROC validated this updated requirement last month.

With this committee's continued support, we look forward to achieving a reliable and enhanced theater missile defense capability and a national missile defense system capable of deploying in advance of projected rogue nation threats.

Once again Mr. Chairmen, thank you for the opportunity to appear here today.

Mr. WELDON. Thank you, General Ralston. I have a number of questions. I will just try to get a couple of them and then brief responding statement to Dr. Kaminski, but General Ralston, just for the record, we would like to note that it took us 9 months to get the BMD Program review, which I think we find is unacceptable. That document could help us in the process of determining where to put our priorities in terms of our assets and our resources, and I would also just mention for the record we would appreciate in the future having a written statement if possible before so that we can look at the comments you make. We would appreciate that in future hearings.

Dr. Kaminski, let me start off by saying I think this issue and you, I think, in a very effective and rather simplistic way told us that we are really close together, and as Mr. Spratt said, there are not that many differences. Let me summarize for you as I think someone who characterizes himself more as a centrist on this issue. I am not one that wants to recreate the cold war. I do not think that Russia is the evil empire and I do not think the threat is from an all-out attack from Russia and I said that publicly.

On the other hand, I think we have those on the other extreme that want to deny there is any threat and that is driving the debate in this country. So I think the problem comes down to one of one word, and that word is "trust." We have the commander in chief going around in a recent op-ed piece, 80 speeches in the United States, basically telling the American people, Do not worry, your kids are the safest they have been in 50 years, there are no Russian missiles pointed at the United States for the first time in 50 years. As you know, we have no way of verifying that—it is a gentleman's agreement—and as you also know, if we could verify it, you can retarget an offensive missile in a few minutes, perhaps even less than 1 minute.

That drives the perception in this country that we do not have to worry, all is well. So that goes to the other extreme of convincing the American people that there is no problem, and that is as wrong as those who want to go back to the cold-war era, in my opinion. So the issue is can we, in fact, rely that the ultimate attempt of the administration is, in fact, to deal with the Russians in a way I want to deal with them, to say to them, hey, we want to be your long-term friends, we want to share technology, we want to work with you, we want to overcome these hostile relations of the past, and we want you to understand that we are not trying to gain a superior advantage, we are trying to work with you to protect our people and our troops.

Second, we look at the commitment to NMD, and we have the statement made, and I think I heard you say it again today, that we do not now have the capability for a National Missile Defense Treaty compliance system. It gets back to the testimony of General Linhard and General Garner, who are very respected senior leaders of the military, who have said we have had that capability, and for a relatively low cost we could—sure, it may be a thin layer of protection, but we do have the capability. But, again, we have been told we do not.

Mr. KAMINSKI. Mr. Chairman, let me correct the record on that. I do not believe we do not have the capability to proceed to deploy treaty-compliant defense. We can do that.

Mr. WELDON. OK. OK.

Mr. KAMINSKI. The issue will be how effective will that defense.

Mr. WELDON. That is right. And we always agree with that. And that is why I was offended when the President said we do not have that. It is going to cost tens of billions of dollars, and it would violate the treaty, and we could not do it from a single site and if we did it would not protect all 50 States. When we wanted to bring generals in to say, hey, that is not what your generals are saying, the administration said, no, you cannot do that, probably because the President just said what he did to veto the defense authorization bill last year.

And then we hear about the dollars, and I just heard you—and correct me if I am wrong—three times today what we added to THAAD was very important this year that allowed you to meet critical objectives, the dollar amounts we put in in this committee, and how effective we were in supporting your efforts to meet the deadlines that you have self-imposed on yourself in terms of THAAD. And you said we need to do more with cruise missile defense. We have attempted to plus up cruise missile funding for the past 2 years. And you talked about the tech base. We are the ones that put additional money in each of these instances for the past years. What came out of the Pentagon and the White House? There goes the Congress wasting taxpayers' money and there goes the Congress funding pork programs. I do not know of anyone in this room that has any pork barrel programs in those items you have related there, but we increased funding in all those areas, and what did we get for that?

You are now saying, yes, this was warranted, it is valid, it is important, we are glad you did it. Where was Secretary Perry saying that earlier this year or where was the President saying that prior to a month before the election when he criticized us openly for doing the things that you are giving us credit for today? So the question becomes one of trust. And if you would put the chart up in terms of the arms control agreements, would you put that chart back up again, please? I think it is the second chart you had, the use of the three alternatives in our total strategy. Arms control agreements are an important part of the process, but I can tell you, Dr. Kaminski, when I look at the record of an administration that relies so heavily on arms control agreements, and when I was in Moscow in January and asked Ambassador Pickering what the response of the Russians was to the transfer of the accelerometers and the gyroscopes to Iraq, and he told me we had not asked them yet, and I wrote to the President in April and he wrote me back and said: "Well, we are still waiting for the Russians to respond, and here we are in October, and we still have not gotten a response to what is, in fact, the direct violation of the Missile Technology Control Regime, one of the very documents you have up there on the chart?"

Or I think of the Chinese transferring the ring magnets and the fact that we waived the sanctions under the appropriate provisions of the agreement that would have not allowed that to take place

or I think of the transfer of the M–11's that we are now saying we really do not know if that happened or not publicly. And I am saying if you rely on arms control agreements, there comes a second part of that, and that is you got to enforce them, and that means sometimes you got to ask tough questions. And you got to publicly say to your counterpart who is a cosignatory, hey, you know, we think you violated this here, and would you publicly respond to that violation?

We have not done a very good job. I could show you 20 examples of violations of the very agreements that you put up there as the cornerstone to our relationship in terms of our adversaries and our potential allies of the future. Trust is at the heart of this whole thing. When we put the dates in for the TMD program and the THAAD, there was not—and you have not given me one document that said that you raised the objections and concerns of the 2001 date. We would have listened to you. We are civil people.

If you would have come into us and said, no, you cannot do it or the President would have threatened his veto and said these dates are unreasonable, we would have dealt with that. That was never raised one time. And now you are saying 2006, and when I was in Huntsville last week they told me they could deploy the program in 2003. Right now your own people are saying that, if we give them robust support in terms of dollars, the technology is there.

And then we fund a high energy laser program. For 3 years the President wants to zero out the funding for the High Energy Laser Program, comes in before American-Israel Public Affairs Commission [AIPAC] and gives a national speech and says Nautilus is our most important priority after he has defunded it for 3 years in the annual budget request.

And then we talk about intelligence, and I look at the comments in here, and I want to go through some of the points in your statements where you say on page 4 of your statement we do not see these systems as posing a threat to the United States in the foreseeable future. That is we do not see an intent that goes with the capability. General Ralston, as a military leader, do you base your response to the intent or to the capability?

General RALSTON. You have to base your response on capability because it is very difficult for intent.

Mr. WELDON. All right. And that is my point. Here we are talking about intent. That is not what these people have to base their response on. It is the capability of us to respond, not the intent of some nebulous body out there that may or may not take action. And then we see that we do not see a near-term in your statement: "We do not see a near-term ballistic missile threat to U.S. territory from the so-called rogue nations. That threat would take 15 years to develop." Well, I can tell you I had a classified briefing on China yesterday that turned me on my head. And I had a public briefing for the members after that, and I can tell you next year we are going to provide a focus on China and what is happening there unlike we have ever done in this country before.

I want to know what potential the SS–18 provides. The Chinese are saying it is for a space-launched platform. We know they have the existing capabilities for a space-launched capability. They do

not need the SS–18 for that. It is for the MIRV capability that the SS–18 would provide, and if the Chinese get ahold of the SS–18 with a MIRV capability, we have got real problems on our hands. And I think this NIE which has been documented over and over again shows that we cannot trust to have a candid discussion so the point in all of these issues in NMD, in TMD, in Nautilus, in intelligence, in arms control, in funding, comes down to one word, "trust."

The Joint Program Office—we do not object to that, but there is a strong feeling here the reason the administration came out with a Joint Program Office was because they saw Congress' bipartisan absolute support for NMD and that perhaps establishing a Joint Program Office [JPO] would be a political way of saying, oh, yes, we are also for NMD. So we will establish this JPO. There are some who say it was only—I do not believe that that is your intent—but there are some in this city who say that is. And who also say it is a way of kind of shutting off the services to prevent the General Garner's and the General Linhard's—God bless his soul who passed away this year—and others that want to come in and tell us what they think we can we do.

So I think when all the rhetoric is wiped away, when all the technical gobbledygook is dealt with, I do not want to tell you what systems to build or how to build them or even how quickly. What I am saying is we have to trust, and I think that is what is lacking, at least in my opinion, that is what is lacking here, and it is through a series of items that I have partially hit upon today that we have gone through over and over again.

I had the highest confidence in General O'Neill and I have the highest confidence in General Lyles. Let them do their job. If you are telling us it is a three-plus-three program, do not let us think it is a three-plus-infinity program where they are going to be funded at the starvation level for 3 years, and if we had General Lyles up here—I do not want to put him on the spot—but he would probably tell us we are funding the R&D necessary to give him that capability in three years.

So the issue becomes what do we need to meet the threat that is there, and are we going to be honest and candid with each other. Those are my concerns. And I do not expect you to respond although if you want to, I would be happy to let you respond. With that, I will move on to my question which is we are working with the Europeans and the MEADS Program, and we had some concerns with that, but as you know we have funded it in our bill, and it is being funded in the appropriation bill. We are working with the Israelis in terms of the ARROW Program. To us that is a key program and a priority and it will be at the top of our list.

I am concerned about what we are doing in Asia. And I would like you for either the record or if you can talk about this publicly I would like to know what we are doing in terms of working with the Taiwanese, the South Koreans, and very specifically with the Japanese to make sure that our efforts in that theater are also being addressed in a way that works with their priorities as well as our own. And I understand there is a classified perhaps a response that you could provide for us as well as perhaps a public statement.

Mr. KAMINSKI. Let me say, Mr. Chairman, that generally we are looking for cooperative arrangements in the region, but I would like to provide a more precise answer for the record.

[The information referred to was submitted for the record:]

COOPERATIVE ARRANGEMENTS IN THE PACIFIC REGION

In order to accommodate varying national programs and plans, as well as the special capabilities of particular nations, the United States is taking an evolutionary and tailored approach to cooperation with East Asia. The lack of a significant overarching East Asian security agreement has precluded a regionwide approach to cooperation.

A. *TMD Cooperative Activities With Japan.*—The U.S. and Japan are engaged in a Bilateral Study on Ballistic Missile Defense. The Ballistic Missile Defense Organization (BMDO) also has three small, but important, technology cooperation projects underway with Japan—two in the composite structures area and one in low temperature microprocessors. The Bilateral Study, which is scheduled to be completed in the summer of 1997, will provide an important part of the necessary information for Japan to make a political decision on TMD acquisition. The GOJ will not make a political decision prior to completion of the Bilateral Study.

B. *TMD Cooperative Activities with the Republic of Korea (ROK).* The Korean Government is evaluating further TMD requirements through a study being conducted by the Korean Institute of Defense Analyses. In March 1996, a U.S. Government delegation headed by BMDO presented a TMD seminar to ROK Government and military representatives. This seminar provided information on TMD systems, threat data, and Extended Air Defense Simulation models. Additionally, as a result of the meeting, a list of options was presented to the Korean Government for a possible Korean TMD study. The U.S. has offered assistance in the accomplishment of the TMD study and has provided information on U.S. TMD programs to the Korean Government.

C. *TMD Cooperative Activities with Taiwan.*

Mr. WELDON. I would be happy to do that, and that is again going to be a priority of ours in the next session because we feel very strongly, as you do, that our allies in that part of the world need to know that we are there with them and want to work with them.

Mr. KAMINSKI. I believe, Mr. Chairman, we ought to be building on the MEADS model and extending it, for example, to upper tier systems.

Mr. WELDON. Have we offered to sell them any systems?

Mr. KAMINSKI. We have just begun initial exploratory discussions. There are various studies being done and some of our allies are not ready yet to fully engage.

Mr. WELDON. General Ralston, for the record, why was General Luck—first of all, were his inquiries and concerns rejected by the JROC or has that, in fact, improperly been transmitted in the media? And if it is correct, why were they rejected?

General RALSTON. Mr. Chairman, first of all, I believe it has been improperly reflected in the media. After General Luck came on board with his support for the THAAD, the JROC worked with Dr. Kaminski, and in fact money was added back to the program in order to try to get the UOES accelerated, and it was primary so that we can provide UOES should it be needed to the overseas commanders.

Mr. WELDON. Thank you. I have a number of other things, but I do not want to dominate this anymore than I already have so I will turn it over to the chairman of the Procurement Committee, Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman. Dr. Kaminski, I want to go back to what we have and what the threat is. And maybe you could put that last chart that you had up for Chairman Weldon back on the board there. I see, Dr. Kaminski, your chart there says "Ballistic Missile Defense Meeting the Threat." The Congressional Research Service [CRS] tells us that in terms of deployed TMD systems, little has changed, and I want to go through that with you. But, first, when those scuds came into the barracks in Riyadh in Desert Storm and killed our troops, did the Non-Proliferation Treaty with North Korea, the Framework Agreement, the INF treaty, the Missile Test Control Regime [MTCR] or export controls stop missiles from coming in?

Mr. KAMINSKI. No, sir; it does not stop the missiles at that stage.

Mr. HUNTER. OK.

Mr. KAMINSKI. That has to work in the stages in advance.

Mr. HUNTER. But it did not stop them; did it?

Mr. KAMINSKI. No.

Mr. HUNTER. OK. The counterproliferation for theater nuclear forces did not work either; did it?

Mr. KAMINSKI. It did not work in that situation.

Mr. HUNTER. OK. And at least for the ones that exploded among our troops and killed them, the TMD lower and upper tier systems or any TMD systems that we had did not stop them; did they?

Mr. KAMINSKI. Although, Mr. Hunter, there is a point I would add about deterring the threat. It is quite possible that some of the warheads that might have been used might have been much more offensive warheads and I cannot tell you for sure did the calculus of deterrence there have some impact. It is impossible to say.

Mr. HUNTER. But my point is the Americans that people saw being killed, their children on television being killed by incoming ballistic missiles were not stopped by any of those things; is that right? Obviously.

Mr. KAMINSKI. The missiles were not stopped.

Mr. HUNTER. OK.

Mr. KAMINSKI. But it is quite possible that the character of the warheads——

Mr. HUNTER. OK. All I care about is stopping the missiles. That is all this committee can care about. We are not negotiators. We are not entrusted by the American people with disciplining other countries to maintain their agreements. Our charter is to be ready, to be ready to physically stop a military threat. Now you have just said none of those things stopped those missiles that exploded. That was 5 years ago. And very shortly after that, we passed this bill which is now a law that says that the Secretary of Defense shall aggressively pursue deployment of effective TMD systems by 1996. Now let us go to what you have done. CRS says little has changed. You said, well, we have done a lot. We have got the Hawk system there and the Patriot upgrade. Now what is the Hawk system? That was designed really to stop aircraft, was it not?

Mr. KAMINSKI. Yes, it was.

Mr. HUNTER. OK. Will the Hawk system stop a basic Scud?

Mr. KAMINSKI. The Hawk system will have some very limited capability; yes, it does have some capability against the Scud.

Mr. HUNTER. OK. So if 50 Scuds came at you at your barracks with American personnel, about how many of them could be expected to be stopped out of 100 Scuds by Hawk?

Mr. KAMINSKI. I cannot answer that without knowing the exact nature of that attack.

Mr. HUNTER. Well, I am told generally speaking not too many could be stopped or would be stopped in that type of an attack by Hawk. If you have got additional information, I would like to see it, but as you said——

Mr. KAMINSKI. No. I agree with you it would be limited if you had a very large saturation threat.

Mr. HUNTER. OK. So in terms of deployed systems, 5 years after the Scuds hit our barracks in Desert Storm, Hawk cannot be classified in terms of the law that we laid down in 1991 as a highly effective theater missile defense system; can it?

Mr. KAMINSKI. It depends, Mr. Hunter, what the threat is. If we are dealing with a few missiles, it could be highly effective.

Mr. HUNTER. OK. But I am talking about the types of missiles that we saw in Desert Storm, which were the Model T's of ballistic missiles. Those were Scuds, and you have just told me that Hawk has a limited capability against those?

Mr. KAMINSKI. I would not say Hawk was highly effective.

Mr. HUNTER. OK. So you cannot say Hawk is highly effective. Now you have seen the MIT says that the Patriots we cannot prove, the Army cannot prove that the Patriots got any missiles, any of the incoming missiles. You saw the Army's statement that they got 80 percent of the missiles, and you probably saw a number of the research services—I think our Congressional Research Service put the number somewhere, valiantly put the number somewhere in between, that they got a certain percentage of them. Certainly they did not get them all. But you want to have defense systems in theater that have a wider footprint than Patriot; do you not?

Mr. KAMINSKI. Yes, we do.

Mr. HUNTER. The reason you want that is because they can drop and disperse biological agents and chemical agents even if they are hit at a fairly close terminal position that can still your troops; right? The agent disperses; your troops are dead. Now you had PAC–3 up there, the PAC–3 upgrades, as the only deployed system outside—or PAC–2—outside of Hawk, and we have already discounted Hawk. Hawk is not a highly effective theater defense system. So 5 years later, the only thing we can really hold up is PAC–2, which is an upgrade to what we had in Desert Storm. Now how far out is the footprint, how wide is the footprint for PAC–2?

Mr. KAMINSKI. May we put up the chart? I cannot tell you——

Mr. HUNTER. It is not very wide; is it?

Mr. KAMINSKI [continuing]. I cannot tell you the exact numbers in open session, but what I can do is I think this chart gives you a fairly effective feel in the following sense: if you know or remember what the capability of PAC–2 against the scuds was in Desert Storm——

Mr. HUNTER. Yes.

Mr. KAMINSKI. Mr. Hunter, that is gray on that chart.

Mr. HUNTER. Could it defend all of Tel Aviv, for example?

Mr. KAMINSKI. No.

Mr. HUNTER. OK.

Mr. KAMINSKI. Well, it is possible you could defend a fair piece of Tel Aviv, but there are two problems. You would need a lot of defensive missile systems. So read cost.

Mr. HUNTER. OK.

Mr. KAMINSKI. And then second, there are going to be leakers with the single-tier system.

Mr. HUNTER. OK. So what we have now in terms of the PAC–2 is we have a system that could not defend a city the size of Tel Aviv completely, and it is also a system in which you could expect leakers; is that right?

Mr. KAMINSKI. Yes.

Mr. HUNTER. Would you describe that as a highly effective theater missile defense system?

Mr. KAMINSKI. Yes, sir; I might.

Mr. HUNTER. You might?

Mr. KAMINSKI. Yes. The reason I say might is that I do not necessarily believe that a highly effective theater defense system has to defend cities.

Mr. HUNTER. So that is the way—

Mr. KAMINSKI. There is some ambiguity.

Mr. HUNTER [continuing]. Or something the size of cities.

Mr. KAMINSKI. I do not know what was meant in the legislation when one said "highly effective."

Mr. HUNTER. Well, let me just ask you this. You know that in the wake of Desert Storm, we saw Scuds coming into two places. They were coming into Tel Aviv, and they were coming into our barracks with American personnel at Riyadh. We reacted to that with a law that said that the Secretary of Defense shall aggressively pursue deployment of highly effective theater missile defense systems. Now if we were not talking about the doggone targets that the missiles came in and hit during Desert Storm, what were we talking about?

Mr. KAMINSKI. If I look at this chart, Mr. Hunter, if you look at the green curve, we are more than doubling the range and looking at the intercept volume, making something like a factor of eight improvement over what we had.

Mr. HUNTER. Yeah, but Dr. Kaminski, you and I know that the Patriot missile system, which is originally designed to shoot down airplanes, has a very, very small footprint. So saying that you are doubling it does not mean a lot, and it means that you cannot with PAC–2, you cannot defend a city the size of Tel Aviv, which was the exact target of the missile attacks 5 years ago.

So let me just say that I think with all of the programs that you have described and all of the different efforts that you have given to us in detail in terms of research and development, programs do not defend American troops. Deployed systems defend American troops. You have not deployed a highly effective missile defense system that we mandated under law that you have deployed by the mid-1990's, and I am here to tell you the mid-1990's are past.

Now let us just go to these biological weapons. The reason you want to have a Theater High Altitude Area Defense System [THAAD] and have a Navy lower tier and a Navy upper tier, sys-

tems that can take on these targets further out, is because the bad guys can disperse chemicals or biological weapons even though they are hit, even though the incoming missile is disabled or hit, if it is hit at a close terminal range, you still have the dispersal of the deadly agents over your troops; right?

Mr. KAMINSKI. Yes.

Mr. HUNTER. So that is why you want to have the system that can stand off. PAC–2 cannot stand off chemical and biological weapons at a long enough distance to ensure that it will not disperse over your target obviously; right?

Mr. KAMINSKI It depends where they are released.

Mr. HUNTER. OK. But let us say they are released and the other guys are smart, and they release them as late as they can near the city. If you cannot defend Tel Aviv from the incoming missiles, you sure cannot defend them against agents that are dispersed when the missiles are hit outside of the city; right?

Mr. KAMINSKI. Right.

Mr. HUNTER. By definition. So we do not have a theater missile system deployed today that will stop an effective dispersal of chemical and biological agents by incoming theater ballistic missiles; do we?

Mr. KAMINSKI. That is correct. We do not.

Mr. HUNTER. OK. And we do not have a system today, the Clinton administration does not have any way to stop today a single incoming ballistic missile coming into the United States, and I am talking about an ICBM, do we, deployed?

Mr. KAMINSKI. No, we do not.

Mr. HUNTER. OK. Now let me just go to what the Koreans are doing. The North Koreans will sell their missiles to anybody that will buy them. At least that is their history; is it not? Their Scuds and the upgrades of their Scuds?

Mr. KAMINSKI. They have certainly sold capability.

Mr. HUNTER. OK. They have 1,000 kilometer missile that is now deployed; do they not?

Mr. KAMINSKI. Yes.

Mr. HUNTER. OK. Can the PAC–2 handle that 1,000 kilometer missile?

Mr. KAMINSKI. It would be very limited. Depends upon cuing again.

Mr. HUNTER. OK. So we have an aggressive country that sells its missiles to, at least to date, to any terrorist State in the Middle East that wants to buy them, which has a deployed system that can be purchased by any of those Middle Eastern States, and we have no defense in theater against it to stop their missiles from coming in; do we?

Mr. KAMINSKI. Mr. Hunter, I think I need to respond maybe in the following way.

Mr. HUNTER. OK.

Mr. KAMINSKI. The first issue you are really pursuing has been one of has the department been aggressive and looking to improve the capability of theater missile defense.

Mr. HUNTER. No, Dr. Kaminski, I am just asking what we have because when all these charts come down, the American people watch these hearings go on, and it is tough for them to understand

what we have and do not have. I want to know what we have fielded because we have Americans in theater, and I want to know what we have——

Mr. KAMINSKI. I understand.

Mr. HUNTER [continuing]. To defend against threats against systems that can hit us now. Do we have deployed systems that can stop those threats before they reach our troops? Real simple.

Mr. KAMINSKI. But what we are doing here is conjuring up various hypothetical threats.

Mr. HUNTER. Well, Dr. Kaminski, I am going to what really happened to Americans in the Middle East. Tel Aviv was hit by Scuds. Our troops in Riyadh were hit by Scuds. I am not conjuring that up. This committee would be remiss if we did not talk about what happened 5 years ago when we rose up as a body and said never again and passed a law signed by the President saying we shall do this. We shall deploy and defend against those threats with a highly effective defense by the mid-1990's. The mid-1990's have come and gone and we are nowhere near deployment.

Now I think that is failure, and so what I want to do is I want to walk us down through here and give you every opportunity to tell me what we have. Now the North Koreans have the 1,000 kilometer missile deployed. They have that thing built and they can sell that to anybody they want to. And we have no theater missile defense against it, do we, with PAC–2 and Hawk?

Mr. KAMINSKI. We have nothing deployed today.

Mr. HUNTER. OK. Now they are also building a longer range missile, Typo Dong II, which has prescribed or has an evaluated range in open information between 4,000 and 6,000 kilometers. It is a faster missile; right? Certainly——

Mr. KAMINSKI. We do not know. I have not seen it flight tested.

Mr. HUNTER. OK. Mal O'Neill told us in our session that we had nothing even on the drawing boards if you include THAAD and Navy upper tier that can handle, presently projected to be able to handle, the Typo Dong II missile that North Korea is developing. And I understand it is a missile under development.

Mr. KAMINSKI. We have nothing deployed that can deal with it.

Mr. HUNTER. Well, no, he said even these systems that are not deployed.

Mr. KAMINSKI. Neither is that system deployed today, Mr. Hunter.

Mr. HUNTER. Well, I understand. I am agreeing that that system is under development, but I would think that common sense would tell us we want to roll out the defense for a system before that system reaches its Intelligence Operations Center [IOC] and is rolled out against us. Do you not want to have the defending system capable before the offensive system is capable?

Mr. KAMINSKI. Surely.

Mr. HUNTER. OK. So the fact that that system is not rolled out yet should not keep us from trying to meet that threat in light of the fact that the North Koreans will sell their missiles, as history tells us, to anybody that will buy them. We cannot expect they will sell that when they get it deployed; right?

Mr. KAMINSKI. Certainly that is a possibility we have to deal with.

Mr. HUNTER. OK. Dr. Kaminski, let me ask you about this 3,000 kilometer.

Mr. KAMINSKI. Mr. Hunter, if I will——

Mr. HUNTER. Go right ahead.

Mr. KAMINSKI. I would like to come back just maybe again to the situation in Desert Storm.

Mr. HUNTER. OK.

Mr. KAMINSKI. When I look at those two curves——

Mr. HUNTER. Let me just ask you a fast question, though, on the record, in case my time runs out before this thing goes. And come back to Desert Storm. You talked about the TMD demarcation. You said that that will not inhibit any of our programs and included Navy upper tier. Does that inhibit any of our programs if you include Navy upper tier linked with Brilliant Eyes?

Mr. KAMINSKI. The demarcation agreement does not do anything to change the situation today for systems that are faster than 3 kilometers per second. So if we assume the Navy Theater Wide, which I believe it is likely that it would be faster than 3 kilometers per second, the demarcation agreement does not change anything that exists today with respect to that determination.

Mr. HUNTER. OK. And I know you want to explain some more about Desert Storm, but could you get back with me, check the agreement, and get back with us with respect to whether we can proceed with Navy upper tier with external cueing?

Mr. KAMINSKI. Yes. Navy upper tier with external cuing from SMTS requires a determination that has not been made today and that determination would not be impacted by the demarcation agreement. We had a process before and we would have one in the future.

Mr. WELDON. And also whether your own certification limits that.

Mr. KAMINSKI. Fine. We will respond for the record.

[The information referred to was submitted for the record:]

TMD DEMARCATION AGREEMENT

The information follows:

The agreed statement on demarcation (ASD) records the clear understanding among the Treaty partners that TMD systems whose interceptor velocity does not exceed 3 km/sec are compliant with the ABM Treaty. This agreement is without prejudice to the compliance of higher velocity Theater Missile Defense (TMD) systems. These "unilateral" determinations remain a national responsibility.

The DOD has determined that the Navy Theater Wide (NTW) program, as currently defined, is compliant with the ABM Treaty. Although a final interceptor has not yet been selected, the compliance determination evaluated a range of interceptor velocities and concluded that even with the highest velocity, most capable interceptor, NTW as currently configured is Treaty compliant, even with a "perfect" (i.e., single beam) cue. If the interceptor is slower than 3 km/sec, the existing ASD will apply. If the interceptor is faster, then either the DOD determination or the potential "high velocity" agreement will apply.

The possible relationship between NTW and the low altitude component of the Space-Based Infrared system (SBIRS), the follow-on the program formerly known as Brilliant Eyes, has not been sufficiently defined to determine whether the low-altitude component of SBIRS would provide only cueing support (and thus be covered by the current NTW compliance certification) or some additional support to NTW. If the low-altitude component of SBIRS is to provide additional support cueing, then another ABM Treaty compliance review would be required. Unless the NTW program is changed in a way that would invalidate the existing compliance certification (such as using low-altitude SBIRS support beyond cueing), it may proceed in accordance with its current certification. In any case, the demarcation agreement for lower

velocity systems will not have an impact on the compliance assessment of Navy Theater Wide, as currently designed, with or without the support of the low altitude component of SBIRS.

Mr. HUNTER. OK. If you could get back with us on that. Thank you, Mr. Chairman. Oh, you wanted to explain Desert Storm.

Mr. KAMINSKI. Mr. Hunter, I just wanted to make one point. There was an impression that the Department has not moved out seriously to enhance our capabilities over what we had in Desert Storm.

Mr. HUNTER. No. Dr. Kaminski, I do not want to talk about whether we are serious, whether we have the right motivations, whether we have dragged our feet. All I am here to say is this: our job is to see that the country is ready. Now we have an existing threat that you have agreed exists. Right now chemical and biological capability with missiles, which are deployed by countries that are not friends of ours, which can defeat anything we have got deployed in the theater missile department. So we have not in my estimation, I think in anybody's estimation, met the mandate that we gave you 5 years ago to do this.

Now the American people look at these hearings and they think we are doing something. You know we have talked about focus groups in the past year, but I had a bunch of Californians in a focus group, and I watched the moderator ask them are we defended against incoming ballistic missiles. They all said absolutely. Of course our country is doing that for us. We have been watching all this stuff on TV. They were asked how it would be done, and one guy said, well, cruise missiles. Another guy said did not Ronald Reagan take care of that? The American people think we have a defense against incoming ballistic missiles. We do not.

But what I think would just absolutely bring enormous criticism on this administration is the idea that after Americans watched our troops being destroyed by Scud missiles in Desert Storm, 5 years ago, that today all we have in real terms is a PAC–2 upgrade which, as you have said, cannot even an area the size of the city of Tel Aviv and is extremely limited in its capability of defending against biological and chemical weapons and has no defense against a missile, theater missile, that is built and deployed by one of the most aggressive nation's in the world, North Korea. So we cannot defend against what is out there and we have got those troops out there who are not covered.

Now, covering the troops is our obligation, and we mess up a lot. You know the Khobar Tower's bombing with all of the talk we made about terrorism, we ended up not thinking that maybe somebody would drive a big truck into the public parking lot parked next to our barracks, 80 feet away, about the width of this hearing, and blow the darn thing up, and you know what one of the defects in our reasoning was. After the bombing that November in Riyadh where a 220-pound bomb was used, we used a 220-pound bomb as our basis for making all of our adjustments and all of our analysis about what we had to do for security in the Middle East. Nobody stood up and said, you know, they might use a bigger bomb like the bomb that the Army then estimated to be 20,000 pounds that was used against the troops at the towers.

So the point is, I am very worried about this administration that could not contemplate that they might use a bigger bomb, the terrorists might use a bigger bomb, 6 months later, than the 220 pounder that they used in Riyadh, and in the same sense I am worried that this is an administration that does not think that somebody, these bad countries are going to fire fast missiles at us. And we seem to have engaged in this exercise to see to it that we cannot build faster interceptors. We have put barriers in front of us, and as I said, Johnny Foster was very careful to make sure that none of these barriers, the Foster box was not put in concrete. It was not institutionalized. It was a unilateral level that we set where we could raise the bar.

And the idea that first we brought up the problem. We said maybe we are making these things—we do not want to shoot down missiles that are too fast. So we raised the problem with the Soviets and then we solved the problem, at least according to what you gentlemen have told us. That bothers me. This country does not have an effective, highly effective theater missile defense deployed now like we said we were going to have in 1991, and that is failure. And I do not think there is any way to talk around that. Certainly, the people of this country wanted to spend money to do this. Even if they did not have the National Missile Defense, they wanted to do this. We did not do it. And if you got an answer on that, I would love to hear it.

Mr. KAMINSKI. I would say, Mr. Chairman, that we have made in terms of volume covered an eightfold improvement in what we had in this period of time, and we have more effective systems in development. They are not fielded yet, but I showed you their capability, and I also would not write off too quickly the second line on my first chart, which was the line of deterrence. I think it perhaps had some impact in that theater. We did not see weapons of mass destruction rain on her troops.

Mr. WELDON. Would the gentleman yield?

Mr. HUNTER. Certainly.

Mr. WELDON. I just think, Dr. Kaminski, if we look back in history, it comes down to the commitment on the part of the senior leadership of this country. When John Kennedy was President in 1960, he made a statement that before the end of the decade we would land people on the Moon. People thought he was crazy. But when you commit American technology to do something, not to plan to send someone to the Moon, not to possibly send someone there, not to think about it, but when you say as the President, you are going to do this before the end of the decade, the whole country gets engaged and the resources are there. That took 9 years; 5 years later what the gentleman is saying is we have really unfortunately to say to our troops, we have minimally better protection today against the lowest level threat of cruise missiles than what we had 5 years ago.

Mr. HUNTER. Dr. Kaminski, we have a lot of talent in this country. Now, I understand, I have been told one of the anecdotes of Desert Storm is that when we wanted to have a deep bunker buster in the war, we went to a couple of the smart old scientists at the skunk works at Lockheed, and in, I believe, 14 days they de-

signed and fielded and had operational in Desert Storm a deep bunker buster. They went out and did it.

Now, you know, at some point after we have had dozens and dozens of hearings, you finally come to the conclusion that the political will does not exist to do what we think we should be doing. And this is not Duncan Hunter's goal that was set for you. It is the goal that was set by Public Law 102–190 that was signed into law December 5, 1991, that said you shall have a highly effective theater missile defense system deployed with a goal for deploying by the mid-1990's. I do not think we have aggressively pursued that. Now maybe there is another course. If you really want to get these systems out there to protect American troops, maybe we should look at an acceleration of this course. Maybe we should look at some type of an operation that waives a number of—if it is procurement regulations or testing deficiencies or inadequacy of testing areas and schedules, maybe we should look at some type of an accelerated program that waives a number of procurement regulations that bypasses the bureaucracy that really joins hands with industry and that has the imprimatur of the Secretary of Defense's concurrence that this thing has got to be done and done quickly. I think we have to deploy theater missile defenses quickly, effective theater missile defenses quickly, and the idea that we wait for this threat to develop and then we get ourselves in a life and death race in which the lives of the American people are at stake to deploy before the bad people exercise the threat that you have seen coming, and we hope 3 years is fast enough, to me makes absolutely no sense in an area of national defense where "be prepared" is the motto. And what you are saying is we are not going to be prepared to defend against an incoming ballistic missile until we see a threat emerge and until we move out.

And just last, you know, I asked the folks from our intelligence agency who did the national intelligence estimate to come in, and I said which of you gentlemen predicted the Falklands War? None of them. And I said which of you gentlemen predicted the dissolution of the Russian empire? It was in all the papers. Nobody predicted that, at least of the group that was there. I said which of you predicted the invasion of Kuwait? And one of the gentlemen actually said was that before or after the tank movement? I said, no, before the tank movement. Dr. Kaminski, none of them. Now that is the same intelligence apparatus that is supposed to give us a warning so we can go to deployment with the National Missile Defense system. I think that abrogates our trust to the American people, our duty to the American people.

Our job is to be prepared to be able to stop a ballistic missile if it is coming into this country, not to have a deliberate policy of unpreparedness until we are given a warning, and then we have got 3 years to move out and put something underneath or in between our population and an incoming ballistic missile. I think this is a national tragedy, and I think that this is an incredible lapse on the part of this administration and the Pentagon, which has a sacred duty to defend the American people, and that includes troops in theater. We have not done it, and putting up thousands of pieces of paper about, by golly, what we are going to do and how this program is proceeding does not substitute for having a deployed sys-

tem that can defend now against a threat that exists now and is deployed by the other side.

Mr. WELDON. Mr. Spratt.

Mr. SPRATT. Dr. Kaminski, when Norm Sisisky left, he leaned over and said to me that is the best, most comprehensive testimony I have heard on this subject ever. And I concur in his opinion. You have come to us and laid out in a very sensible, rational, and dispassionate manner where we stand and where we want to go. You have done an excellent job of giving us an overview, and as I listen to the questions of my two colleagues, I think we must have been in different rooms or different hearings over the last couple of hours because I come away from what you said with an entirely different perspective on it and I have got a backward perspective as well as a forward perspective.

If you look at your charts, your layered charts, we have got 12 different systems, as I count it, that are progressing since the Persian Gulf war and coming online in the near term. As I understand your testimony—correct me if I am wrong—right now for the most part the pace of these systems, the THAAD, upper tier Navy, lower tier Navy, PAC–3, PAC–2 enhanced guidance, and MEADS—leave out MEADS—that is funding determined—but the others, their pace is largely determined by the technology problems that have to be resolved to put big money behind the completion and development and the procurement of the systems; is that a correct assessment?

Mr. KAMINSKI. That is correct, Mr. Spratt. The funding piece that comes with that is really postproving the technology and ramping up into production.

Mr. SPRATT. Now we have heard all sorts of extrapolations about systems which have yet to test successfully. Has the THAAD made a successful intercept yet?

Mr. KAMINSKI. No, sir; it has not yet, unfortunately.

Mr. SPRATT. Has the Navy upper tier made a successful intercept yet?

Mr. KAMINSKI. No, sir; it has not.

Mr. SPRATT. And what are the problems that have to be resolved for those systems to be certified as worthy of proceeding with because they have demonstrated their mettle, their capability in live fire, real life testing?

Mr. KAMINSKI. Those are really the issues that we have ahead of us. As I said, what we need to do is move to a stage where we first show we can intercept and then show we can do it routinely and then show we can do it routinely under stressful conditions.

Mr. SPRATT. Now if you had more money, to what extent could you accelerate that schedule for testing, rigorous testing, and proving the field worthiness of these systems?

Mr. KAMINSKI. In these programs, I do not believe we would make a substantial advancement in the schedule of the testing. I think we are basically limited by the test resources and the technology there.

Mr. SPRATT. I was here all during the 1980's, and I saw us propose the ARIS, the KKV, the Head Eye, five different directed energy systems being funded at one time, all to be abandoned for various problems and all to be abandoned because they were part of

an evolution toward better and better systems, and it is my impression—correct me if I am wrong—that if we had indeed hastily deployed a ballistic missile defense system that would give us some national territorial coverage, that right now today we would be talking about the replacement of that system because it would be inadequate and obsolete already. Would you agree with that?

Mr. KAMINSKI. Very likely the case, Mr. Spratt.

Mr. SPRATT. Now one of the reasons the President vetoed the defense authorization bill a year ago is that we legislated IOC's in it, and that is always a risky business, and it is fortunately a business that Congress does not often engage in. Specifically, I was concerned about lumping SMTS in with other systems and legislating a 2003 initial operational capability date for it because my best information is that it is not ready for deployment by the year 2003, and if we force the deployment by that year, we will force the deployment of a suboptimal system that will be obsolete within years after it is put in place and will not give us the sort of footprint that we are seeking for all of these systems, theater and national missile defense; is that correct?

Mr. KAMINSKI. I agree with that, Mr. Spratt. We have just had a Defense Science Board review that program. They have come back recommending that considering all the issues, a 2004 first launch looks like a reasonable arrangement.

Mr. SPRATT. And what are the technical problems that have to be conquered, overcome, or mastered before that system is really worthy of deployment?

Mr. KAMINSKI. There are two or three technical problems there. One is the issue of lifetime of the components in the radiation environment of space, in the Van Allen belts. There are some configurations that for better coverage you would want to flight higher; the issue will be how long will those components last in that environment, and it is an issue you would want to have resolved before you go off and procure 24 systems, because a difference of a factor of 2 in lifetime would make a big difference in the cost of that kind of a system.

Mr. SPRATT. And this kind of LEO and detection system and early cuing system is, as I understand it, critical to expanding the footprint and capability of all of the systems that we are talking about, tactical, theater, and national missile defense system?

Mr. KAMINSKI. Very much so, Mr. Spratt. You are exactly right. I wish I had shown some charts indicating the kind of leverage that you get from better cuing. It is very substantial. It has improvements of the order that I showed between the PAC–2 and the PAC 2/GEM, very significant.

Mr. SPRATT. So until we get it in place operational at a level that is optimal or optimal given the technology capabilities we have right now with the kind of data processing speeds and capacity and the kind of cryocooler that we really want, then we really cannot say that we have got the robust system that we are capable of. So to some extent, all of these systems will not reach their maximum robustness until we can complement them with this Space and Missile Tracking System [SMTS] and it is at least 2004 before it is a fully capable and deployable system?

Mr. KAMINSKI. Yes, sir. The SMTS leverages each of these systems to include our national missile defense capability in a big way.

Mr. SPRATT. Now let me make something clear. With respect to the THAAD, have we made a determination that the THAAD can be cued by SMTS and still be treaty-compliant?

Mr. KAMINSKI. We have not made that determination as yet, Mr. Spratt.

Mr. WELDON. Would the gentleman yield on that?

Mr. SPRATT. Certainly.

Mr. WELDON. Would you clarify? Because that is exactly the point I raised earlier. What you are saying is only external cuing from DSP has been certified.

Mr. KAMINSKI. We have made the determination that external cuing from DSP has been certified.

Mr. WELDON. Does that mean we have to go back and revisit the whole issue as relates to SMTS?

Mr. KAMINSKI. We will have to go back and readdress the compliance with SMTS. However, I would point out that with the signature of the demarcation agreement that we just talked, that is why I described this as an open door. With that agreement signed, that will not be an issue for THAAD. THAAD is a system that will intercept at a speed less than 3 kilometers per second and it will not be tested against targets traveling faster than 5. We will not have to go through a compliance review on that issue. That door will be opened for us by the demarcation agreement. It is one of the benefits of the agreement.

Mr. SPRATT. Let me shift gears a little bit and ask you a question about the organization of program management. There is an initiative going on now which was one of the last decisions taken by General O'Neill to consolidate more program management in BMDO, and in particular to create sort of a joint program office with BMDO which will displace some of the responsibilities at commands like the command at Huntsville and the Army have been responsible for in the past.

Those of us who have been to Huntsville a number of times are impressed with the people down there and impressed with what they have achieved, and we also think that it is probably wise to leave a lot of program management responsibility in the services. And we are skeptical of increasing the control of programs in the field from within the beltway and Washington, DC. Do you share these concerns and you are satisfied with this reorganizational program?

Mr. KAMINSKI. Mr. Spratt, I share those concerns, but I am also satisfied with this organization. I do not believe that we ought to be trying to centrally manage a program like the National Missile Defense Program in Washington. I do believe that we need a program office which will be small, and I have put a limit on this program office for that reason so that we can depend upon field-experienced organizations such as the organization in Huntsville to manage key elements of this program. But I do feel we have a responsibility to consider various approaches that have been promoted by services other than the Army. There is a Minuteman launch proposal, which needs to be fully wrung out.

Mr. SPRATT. Are you concerned that if you leave the existing management structure in place that the Army will not give a robust fair shake to the Minuteman?

Mr. KAMINSKI. I think we will do a better job of this by having a central coordinating program office with an overall systems engineering responsibility to look over the various elements, and then I am a believer in decentralized management, once we have basically system-engineered the program, so we know what it is we are going to build. We need to do some of those things centrally to take inputs from the field. When it comes time then to execute on the management of the segments of those systems, I am a believer in decentralizing that and letting the expertise go to the field, letting that management happen in the field. But we need an overall architecture to make this play like a symphony.

Mr. SPRATT. Let me go back to the basic theme. Are you satisfied that ground-based interceptors are the best first step we can take toward national missile defense?

Mr. KAMINSKI. At the moment, they appear to be the best step to me.

Mr. SPRATT. And while you put some stock in lasers, are you supportive of the airborne laser boost phase intercept project?

Mr. KAMINSKI. Yes; I am.

Mr. SPRATT. How far away are we in your estimation from having really robust laser systems that might be intercontinental capabilities that might be used in a boost phase intercept or something like that? Space-based lasers?

Mr. KAMINSKI. Aircraft-based or space-based?

Mr. SPRATT. Well, space-based.

Mr. KAMINSKI. Space-based we are some number of years away, Mr. Spratt, because in the system concepts I have looked at, we will not only need to develop and prove the spacecraft, we will need a new launch vehicle that does not exist today as well. So this is some number of years to be able to effectively develop tests and deploy that kind of capability.

Mr. SPRATT. Once again thank you for excellent testimony and a good overview of this area. I think you have defended our position very, very admirably. Thank you, sir.

Mr. KAMINSKI. Thank you, Mr. Spratt.

Mr. HUNTER. Thank the gentleman.

Mr. Everett.

Mr. EVERETT. Thank you, Mr. Chairman. Mr. Secretary, I had some questions I gave to General Garner in the last meeting several months ago, and my concern is about something some of my colleagues have already talked about, and that is the operation in Huntsville. You said you had to put limitations on the inside the beltway unit. Would you describe how those limitations apply in relationship to the work done in Huntsville?

Mr. KAMINSKI. Yes, sir. Basically I have directed General Lyles to move out with the Joint Program Office, but to limit the size of that program office.

Mr. EVERETT. Would you describe what you mean by "limit the size"?

Mr. KAMINSKI. I think the limit I have placed on that program office is 60 people.

General LYLES. That is correct, 60.

Mr. EVERETT. Inside the beltway?

Mr. KAMINSKI. Inside the beltway.

Mr. EVERETT. How will that relate to the work force in Huntsville?

Mr. KAMINSKI. I do not see any substantial changes in the work force at Huntsville associated with this program. As a matter of fact, as we increase the base of this program, my assessment probably is that that component would go up. I would say we have not determined this finally because of how much is to be managed, but I do not see anything on the horizon that leads to a decrease there at the moment.

Mr. EVERETT. I had asked General Garner that since this places BMDO with responsibility of coordination, oversight, and execution of the program, did he know of any examples where that had been done before, and he answered that to his knowledge. Do you know of any examples where it has been done before?

Mr. KAMINSKI. Yes, sir; I do. I would say the BMDO office is doing that job for me today on THAAD, on PAC–3. I am looking to General Lyles again to put together a set of component systems that play together, that work together, that he has a responsibility for a battle management command and control system, which make these elements work together. So I think he is doing that job today.

I would say that the role of the BMDO here is changing. If you compare the BMDO today with the old SDIO, the SDIO was developing a lot of advanced technology. They did not have the responsibility to oversee fielding of equipment that worked in the field. This is the issue of focus that Mr. Spratt, I think, was raising earlier. We are looking for the BMDO here to be moving to a situation where we are not simply demonstrating a technology, but we are looking to field systems which work and defend our troops.

Mr. EVERETT. Mr. Secretary, I come out of private business. This is my second term up here, and I must tell you that when you consolidate power inside this place, it literally scares me to death. I sure want some assurance from you that there is some reason for doing this. For instance, I asked General Garner how the program, this arrangement would impact the service's ability to deploy a national missile defense program and he had no response to that. I asked him would this arrangement improve or compound schedules and efficiencies? And I had no answer there. Would you please give me those answers or if you do not have them, provide them?

Mr. KAMINSKI. Yes, sir. I think this will improve efficiencies. An alternative here would be for me to set up three different program offices, an Army, a Navy, and an Air Force program, let them do their work for some period of time and then try to put this together. I choose the opposite approach, to try to pull this together, to pick the overall system approach first, to look at what is offered by capabilities developed in the Air Force and Navy as well as the Army, to get that decided, and then to decentralize and let the management be done in the field to the degree we can. I am not a believer in centralized management.

Mr. EVERETT. If I point out that this had been done well down there for about 40 years, and in my opinion would be that if some-

thing is not broke, you ought not try to fix it, what would your response be?

Mr. KAMINSKI. I would respond, Mr. Everett, by saying that a lot of the things that were done down there for 40 years are important, but they are things that have not been done there for 40 years that are critically important. One of the issues was the one Mr. Spratt was mentioning, this SMTS system. This is a constellation of 20-some low to medium orbit satellites that will provide critical precise tracking information. This makes a big difference on the effectiveness of both a national and a theater missile defense system.

Now we want this to play like a symphony so this SMTS system has to be coupled into our ground-based interceptors and our radars. Those issues have to be worked through very carefully. That SMTS system is a system that is being developed and fielded by our Air Force. So those are the things I want to bring together and make them work the way they should.

Mr. EVERETT. Thank you, Mr. Secretary. Thank you, Mr. Chairman.

Mr. HUNTER. Folks, we have got a vote on the rule for H.R. 3539, the Federal Aviation Authority. I would ask the gentle lady from California, you want to break now and come back and start off, say, in 10 minutes?

Ms. HARMAN. I would prefer that if our panel can accommodate that.

Mr. HUNTER. OK. How much time do we have left? I might ask the staff? While they are checking, the gentle lady is recognized. Go right ahead and let us see how far we can go then before we break?

Ms. HARMAN. OK. I certainly would like to echo Mr. Spratt's comments, Dr. Kaminski, about the thoroughness of your testimony. I was enormously impressed with the presentation that you made on this extremely difficult subject. I would also like to reiterate the fact that many of us on this committee are keenly interested in this issue. It is not a partisan issue. I support a robust theater missile defense and national missile defense program, but obviously I want to spend scarce dollars wisely and well, and I do not want to deploy systems that will not work or I do not want to deploy systems too early if we could wait a bit and have better technology and better performance.

So in that vein, I thought your presentation again addressed a lot of the concerns that many of us have and you have made me much more comfortable that we are headed in a good direction. What I would like to do—that is the 10-minute bell, Mr. Chairman—is come back, ask a few questions, and also invite, if I could, I hope this would be appropriate, General Lyles perhaps to amplify any of the comments made by either of you should he choose to because he is new on the job, but he has got his arms around it. He comes well equipped, and I thought that this committee might benefit from any observations he would like to make.

Mr. HUNTER. Certainly, without objection, General Lyles will be allowed to join the panel and offer his opinions and positions.

Ms. HARMAN. So are we recessing for the moment, Mr. Chairman?

Mr. HUNTER. Yes. Why do we not? We have got about 8 minutes. Why do we not go ahead and recess and we will come back in about 10 and, gentlemen, thank you for having some endurance this morning. This is going to be a longer session that we anticipated.

[Recess.]

Mr. HUNTER. The gentlelady from California can continue her line of questioning.

Ms. HARMAN. Thank you, Mr. Chairman. I just have a couple of brief questions, and then I would hope we could hear any general comments that General Lyles would like to make. The headlines in today's newspaper about the new clashes in Israel are very disturbing, and everyone knows that Israel is a country extremely vulnerable to missile attacks and in addition to that that Israel is our ally and is the only democracy in the Middle East, and that may cause us at some future time to get involved in that region. So if there is any visual for the need for a robust ballistic missile defense program, that is it.

In that context, I just wanted to ask about the current status of the ARROW Program, which I know Chairman Weldon referred to. It has enormous support here. It is a shared expense program, cost-shared program, between us and Israel, and my understanding is it just recently had a successful hit-to-kill test, and so this again may illustrate some of the things we are talking about here.

And second, I wanted to ask about the THEL Program, which stands for Tactical High Energy Laser Program, that we also have ongoing with Israel, and I want to be assured that the funding is intact. I understand the Army may be administering that. Nonetheless, I know, Dr. Kaminski, that there is interest at your level in these programs. So I wanted to give you a chance to respond and then turn my time over to General Lyles.

Mr. KAMINSKI. Thank you, Ms. Harman. Indeed, the ARROW Program is a key cooperative program between the United States and Israel. It is really advancing the capability there in a major way. That is a program in which we are cost-sharing the development. It is 36/64 share with the United States share total just a little over $200 million, $202 million, and the Israeli share $354 million. They indeed did have a successful test. It turns out, however, that this system is not a hit-to-kill system. This is a system that is using a directed warhead. It is a system, though, that is very important to us not only for the reasons you stated in terms of stability in the region, the critically important underlying policy reasons, but we are also benefiting in that there are some components being used for that program that share some common heritage with components in THAAD, for example, and so seeing how they work in flight tests and the like is very valuable feedback for us.

With respect to the THEL Program, the funding for that is intact. The objective there—that is being run under our Advanced Concept Technology Demonstration Program, and the Army is playing a key role in that program with us. The issue there is bringing together the combination of a laser technology that has been demonstrated, but the laser technology has not been demonstrated integrated with a fire control system that would be effective in first tracking and then handing over the track of the Katyusha rockets.

We have demonstrated the ability if we can get the beam on the target to knock down the Katyusha rockets. We have not demonstrated the ability to put this whole thing together yet and make it work. And that is the purpose of this ACTD to see if we can close that loop and make this system work to allow the Israelis to assess whether this ends up being a useful military capability as it is deployed, and then it gives them the option if it is to go ahead and produce some number of systems.

Ms. HARMAN. Thank you. General Lyles.

STATEMENT OF LT. GEN. LESTER LYLES, DIRECTOR, BALLISTIC MISSILE DEFENSE ORGANIZATION

General LYLES. Congresswoman Harman, I appreciate this opportunity to be before this committee and to share my views about all the programs going on in ballistic missile defense. I will keep my remarks brief because I think Dr. Kaminski and General Ralston covered all the issues very, very thoroughly and I believe in and support all the comments and all the words they have stated about the program.

I did just want to make one comment. I have been in the job for about 30 days, and Congressman, I will reserve your offer of shark repellant for later, but right now I am enjoying the activity, enjoying the opportunity of interacting with all the people involved with it. I want to make one comment relative to an issue I think is really germane to all of our programs in the Department of Defense and particularly one of this nature, and that is the commitment of the leadership in the Department of Defense. I can tell you because I look very, very closely for this. I think all of us in uniform do for any major programs that we are responsible for.

I have been absolutely pleased and thoroughly, thoroughly impressed with the strong commitment on the part of the leadership, the civilian leadership, in the Department of Defense, at OSD, Dr. Kaminski, Dr. White, Dr. Perry, all down through the line in OSD, and certainly in the Chairman's Joint Chief of Staff Office, for all of our programs in ballistic missile defense. There is complete commitment to the activities that are going on, complete understanding of the threat involved, and complete commitment to making sure we provide the best commitment and best capabilities to our warfighters in the field, and I feel very, very positive about that, and very, very pleased with that kind of commitment that I see involved in all of the activities.

As I look at the various programs, again in my 30 days perspective, of all the activities that are going on, our Theater Missile Defense Program, our National Missile Defense Program, and the technology programs for which BMDO is responsible, one thing that really jumps out at me is the thrust at which we are working each one of the different elements, and particularly our near-term elements for theater missile defense. In my 28 years of experience in the U.S. Air Force, all of which have been involved in research, development, and acquisition, I can say that again the commitment to working these programs is extremely strong, and I think the pace by which we are taking on each one of the elements in spite of some of the engineering problems, in spite of the questions about

threats, are really the right sort of thrust to have for each one of the programs that we are involved in.

And while there may be some questions about the capabilities we have today, in my opinion when I look at and compare other programs I have had experience with, we have made significant, significant improvements since Desert Storm in the ability to provide protection for our war-fighting forces. And again, I feel very, very pleased about that for our organization.

I will just make one last comment, and it is one I think is very, very germane to the future of the activity, and that is our management structure. Dr. Kaminski has given me a mandate for our management of national missile defense. We will have a joint program office that is no larger than 60 people, and we will even try to keep it a little smaller than that. But I am absolutely committed and absolutely committed to the fact that we need a joint program office to bring together all of the elements involved in a national missile defense capability.

It is not just the activities that are currently managed by the Army. It is not just the activities that are managed by the Air Force in our space realm and BM/C3. It is not just the various elements that even the Navy can bring to this picture. It is all of those together to give us a systems of systems perspective and I am absolutely committed to make sure that we get that kind of ability from a systems of systems perspective and not look at in terms of parochial interests. So we need a joint program office to help us look at that total perspective. Mr. Chairman, Congresswoman Harman, I am very pleased to be here. Thank you.

Ms. HARMAN. Mr. Chairman, thank you for including General Lyles at the hearing table. I just want to conclude by saying that I am one who will keep watching because I want a robust ballistic missile defense program. I voted for the plus-ups that this committee has suggested. In fact, I coauthored one of them in the last Congress with our former Member, now Senator Kyl. So count on me to keep looking and keep pushing, but I am quite satisfied that the presentation today gives us a lot of information we did not have, and I am quite satisfied that with my buddy, General Lyles, in there, he will keep pushing from the inside, and we will have a well-integrated, well-funded, well-thought-through program. Thank you, Mr. Chairman.

Mr. HUNTER. I thank the gentlelady and we are privileged to have the chairman of the full committee with us today, Mr. Floyd Spence, who is one of the champions of missile defense and deployed missile defense, and Mr. Chairman, anything you would like to say?

The CHAIRMAN. Thank you, Mr. Chairman. I would just like to thank Dr. Kaminski, and the general, and the general, thank you all for being here, and in this case being the messenger back to the administration for some of our frustrations, and I have many of them, of course, and you know of them, but I will just use one. And I have to go up and meet somebody else in about 3 minutes, but maybe I can say it in that length of time.

This business about the threat and, general, you mentioned the commitment of DOD to meeting the threat and so forth. Well, you know, that is the frustration I have is how you deal with the

threat. And in that connection we have this NIE assessment which bears on the threat that we have been directing a lot of attention to lately. And to show you the frustration I have, let me put it this way. That assessment says—I am paraphrasing a little bit—aside from the existing nuclear powers, there is no threat to the continental United States from others for at least 15 years. Now that to me, they went to a lot of pains to tailor that answer on assessment to fit the needs of a lot of people who are saying we do not have a threat, No. 1.

They write off the threat from China and from the other existing powers who have the capability, maybe not the intention, as we talked awhile ago, you know, but as long as you have the capability, that to me is a threat out there because things can change. But you write off the threat from these places by just saying aside from that and we are only going to consider other countries. But then we also write off the rest of the United States and Alaska and Hawaii and say Canada, another country right close by, by saying continental United States. And then we also in this statement, limited as it is, we ignore the possibility of technology transfer from the existing powers to these other nations, rogue nations, whatever you want to call it.

So then we get used to using the phrase: "There is no threat from rogue nations for 15 years." And everybody is supposed to buy that without thinking about these other things, and so I just wonder if we are not going to call the threat that we have from China a threat just because it is written off that way and we use intelligence agency that way to dumb down or play down the threat? And that is what concerns me, and I think that is misleading quite frankly. I think it is done on purpose. It has to be. That assessment had to be given answered that way in answer to the question that was posed to them that way. So you have not got to respond to it because like I said you just are kind of the messengers of my frustration, but that is the point I wanted to make in this whole thing about threat assessment.

Mr. HUNTER. Thank you, Mr. Chairman. And you know what, it might be good to have an answer as to why, and I have asked our intelligence gentlemen who formulated this thing why did we say there is no threat to the continental United States specifically excluding Alaska and Hawaii, and then when they come and talk to you in private session, well, yes, maybe the missiles could, in fact, reach those places, but why do we make that distinction between States of the United States? Is there any reason for that? General Ralston? You have read the intelligence estimate; right?

General RALSTON. Mr. Chairman, I have. I cannot answer for why it was written that particular way. I would be happy to provide an answer for the record.

Mr. HUNTER. OK.

[The information referred to was submitted for the record:]

INTELLIGENCE ASSESSMENT

The information follows: The intelligence community has pointed out to me that they have tried to describe the threat to the United States as accurately and as objectively as possible. They stand by their judgment that at least until 2010, ballistic missiles from countries other than the current nuclear powers may be able to reach

Alaska and uninhabited parts of the Hawaiian Islands chain, but not the contiguous 48 states.

Mr. HUNTER. I have a couple of other questions here, but I wanted first to go back, Dr. Kaminski, to my point in the walk that we took through what we have fielded because the American people only care about things that are fielded and things that defend their people now because their kids are over in the Middle East now. And General Lyles, you said you have not gotten any shark repellant yet. Let me tell you if we have a replay of a Scud attack on American troops in theater 5 years after we said never again and after the American people directed us to promptly field an effective theater system and those missiles get through and kill more of our kids, you are not going to need shark repellant. You and probably the rest of us are going to need disguises because we are not going to be able to show our faces to the American public.

And Dr. Kaminski, that goes to maybe the positive side of, if there is a positive side to anything that I have said today, of the concerns that I have, and that is what can we do to accelerate this program? Now we have got great technical people. We have obviously a national mandate that we focus at least on theater missile defense and get it out there as fast as possible. Do you think that there are things we could do that could accelerate this program, and you mentioned in answer to Mr. Spratt's, one of his questions, you said that we were limited by, at one point, by testing resources. Now does that imply that if we accelerate tests, if we get more money for tests we are going to be able to move this program faster? What can we do to accelerate the deployment of effective missile defense systems like the law says we are supposed to be doing?

Mr. KAMINSKI. I think, Mr. Chairman, that we are doing most reasonable things that I can see. But I really am pushing from my perspective to do things as quickly as we can. This testing is very complex. One of the areas where I see some limitations today that we are working on to fix, is an area where we could use some help, is looking at the test targets, being sure we have a robust set of test targets under a variety of conditions. Because, as I said here, there is a big difference between, say, an industrial capability that comes in and says I can do a hit-to-kill. I have tried to make the point, and I want to keep making it, that being able to do it once is quite different from being able to do it repeatedly, routinely, and quite differently from being able to do it under stress.

So we need to be testing these systems under very stressful conditions and we need to be testing them against targets that represent the kind of threats we will be operating against. In some cases, we are running into limitations in having the right set of target vehicles. That is a place where we need some help.

Mr. HUNTER. Now when you say that, you mean it is we are having a tough time getting industry to produce these targets fast enough to meet our schedule?

Mr. KAMINSKI. Fast enough and at a reasonable cost.

Mr. HUNTER. OK. Let me ask you a question. Obviously you got people now selling these doggone Scuds to anybody that has got a couple of shekels to buy them. Can we buy some Scuds? I know we have got a few probably in inventory, but can we simply get some Scuds and use those? Instead of replicating Scuds, use Scuds?

Mr. KAMINSKI. We can do some things along those lines. We also, though, want the capability to test against some more advanced capabilities.

Mr. HUNTER. OK. Have you looked at purchasing some Scuds for testing purposes? Does that make any sense? Have you explored that at all?

Mr. KAMINSKI. We have explored that. In fact, this is an area right now General Lyles' office has come back to me recently, and we are giving some direction to look at this problem broadly. In fact, some of the areas where funding have been added to the program, this might be a good use of some of those funds to reduce our risk long-term. That is an area where I see a limitation. I would ask for General Lyles to comment. He is really closer to this day to day than I am.

General LYLES. Mr. Chairman, I just returned from a trip to Huntsville and looked at some of our targets programs down there. As Dr. Kaminski mentioned, we are doing an end-to-end review, a very quick review of our targets needs both in terms of today and certainly in the future as we get our more advanced capability and the upper tier capabilities. I do not have an answer for you right now on what the final conclusion is, but I agree that is a limitation that could hamper us in the future if we do not come up with the right solution, but I am convinced we are going to come up with a recommendation that is both affordable and gets us something very, very quickly.

Mr. HUNTER. OK. Have you talked to industry about accelerating their target production?

Mr. KAMINSKI. We have looked at a number of options.

Mr. HUNTER. OK. OK. Let me ask you a couple other questions here. We have got a little laundry list of things that we want to check off. The Defense Science Board recently concluded a study that called for acceleration of SMTS deployment to 2004 versus 2006. What steps have you directed to ensure that the SMTS Program will, in fact, be accelerated to 2004 or possibly even earlier, and I guess the first thing we ask you is do you think that study, the Defense Science Board study, is valid and should be followed?

Mr. KAMINSKI. I think the study is valid. They made a couple of recommendations, one is the need for more and fulsome competition, real competition, in the program, which I support. Another is a path to advance the deployment. And a third has to do with the need for some system integration capabilities broadly in the program. I am supportive of all three of those recommendations. We will be looking at this really very seriously as we put together our 1998 budget. There are some pieces of the program that we do not understand the full financial consequences of yet, and I have been directing the Air Force to come forward with those consequences as we review this in our 1998 budget cycle.

But I would say in summary, Mr. Chairman, as I have looked at this SMTS Program, my opinion is that it is a very critical, high leverage program. It impacts in a very big way our TMD systems and a national missile defense capability. This is important to do quickly and it is important, however, to do well.

Mr. HUNTER. Well, I agree with that, Dr. Kaminski. On the other hand—and I think we ought to do it as fast as possible—that in

no way should preclude us from fielding effective theater missile defense systems without that system as early as possible because if we wait for the technological revolution to be over before we field the system, we will never field anything. And what we have—at least in my 16 years on the Hill what I have run into is the idea that you do not do anything until you can do everything so you never do anything. And that is why we see some systems that, my gosh, when did we start Patriot? 1962? And I think we deployed that—when I came in in 1980 in the Congress, we still had not deployed that system because we were trying to catch some new technology.

So I think we need to look at this program as one that has enormous national priority, and let me just ask you, do you think there are places with respect to waiving regulations? Do you think that the system, the bureaucracy, the procurement infrastructure that we have, is also holding back this program?

Mr. KAMINSKI. I honestly do not think our bureaucracy or procurement infrastructure is holding this program in any significant way. I think our feet are being held to the fire quite properly in testing the capability thoroughly. That has a big impact on the schedule being able to test the system suitably, but I believe we need to do that. I believe we need to wring this out.

Mr. HUNTER. Well, I believe we need to test it, too, but cannot we accelerate testing and test it rigorously, vigorously, and often?

Mr. KAMINSKI. We can.

Mr. HUNTER. With directives that when something goes wrong, doggone it, you fix it, and you move out quickly to another test, not that we are going to look at the calendar for the missile range and see when we can get back on the calendar?

Mr. KAMINSKI. I believe we have this on a fast path, but I think a really significant issue is that these programs that we have under development now on route to deployment, we are in a different cycle. We are not in the cycle of demonstrating a technology. We are in the cycle of making this work. That is what really took so long with the PAC–2 system. I would point out, Mr. Chairman, and it is not unique to the United States, if you go back and follow the history of the SA–10 and the former Soviet Union, you will see a similar development time.

Capabilities were demonstrated earlier, but putting together a complex system like this and make it play like a symphony does take time. General Ralston and I have both worked together in a number of special access programs like the stealth program where we have been familiar with moving out very quickly. I am trying to apply those principles to this program to accelerate/streamline things where we can. I do not think the management structure we have in place is an impediment to that.

I would say, though, that we have a transition yet to make from management teams who are accustomed to developing and demonstrating technology to the kind of discipline that is required now to field militarily effective systems when they are deployed.

Mr. HUNTER. Mr. Taylor.

Mr. TAYLOR. Thank you, sir. And let me begin by complimenting Dr. Kaminski. Congressman Geren and I were talking that we, in this room, have been privy to some extremely smart technical peo-

ple, and we have been privy to some people who communicated well, and more often than not they are not the same person. But we were both really pleased that you were able to talk about some very technical things in a manner that not only the people in this committee but I think any American could understand, and especially your analogy of a bullet hitting a bullet in discussing just how difficult this task is, I think that will explain to every American just what kind of challenge that our Department of Defense and the different subcontractors that work for it and this Congress have before us.

I want to thank you for your update. I guess I would get back, since you were using an analogy, I would like to use one as well. We, particularly at our local offices often get calls from constituents whose children have terrible problems, be it leukemia, spinal bifida, and you really wish that we, somehow, had just enough money in the world to make them go away, but we only have so much money. And you wonder at times—I personally wonder—if we were to increase the funding for some of these programs dramatically, tenfold, twentyfold, could we actually find a cure or would most of that money just fall off the table and not really speed the process along.

Having asked that question with regard to that problem, since you were pretty good at explaining things, how would a five or tenfold increase in funding with regard to the challenges you have of a bullet hitting a bullet, what difference would that make in speeding things up; because I think all of us agree that we need to do something? The question is, can we really speed things up by dumping a whole lot more money on this problem at the expense of other weapons programs?

Mr. KAMINSKI. If you ask what I would do with a fivefold increase in funding, I would first order put some money aside to think about doing things in a whole different way. Let me give you some examples of that. Sometimes we are drawn too much to the analogy of wanting to hit one bullet with another and we will try six different bullets. Well, pretty soon you get to the point of diminishing returns where you are trying the seventh different kind of bullet and the eighth kind of bullet, and you deserve to ask yourself is there another way I can do this job.

There are some other ways to do this job, but we have been frustrated in making them work as well, One of the key ones, and I would like to offer General Ralston the opportunity to comment on this, because I think he knows a lot more about this than I do, is the whole issue of attack operations, not giving your adversary a free ride, being able to detect this ballistic missile launcher while it is on the ground in the adversary's territory, and actually being able to get to it before it is launched.

And we have some problems in finding these systems and putting all that information together, but that is one example I would give you, Mr. Taylor, in terms of in addition to trying different intercept bullets, I would be looking to broaden our work in that sort of an area.

General RALSTON. Mr. Taylor, let me add to that. As Dr. Kaminski says, in our view, the best place to kill a Scud missile is in the factory where it is being built. The next best place is on

the road out to the launch area. Then we would like to get it in the launch area before it is launched, and as a last resort, we want to get it over our troops and over our territory; and so, we try to work all of those particular legs of the problem.

But it is difficult to go and find a launcher when it out in the woods and the desert. There is technology that can help us do that. There are various autotarget recognizing schemes and we need to be putting some money on that. We are putting some money on that, trying to get that integrated into our attack operation systems where they are airplanes or whether they are the Army's ATACMS system, for example.

Mr. TAYLOR. If I may followup, going back to some of the threats that my friend from California brought up, if we could on a case-by-case basis, with what a lot of people consider to be our three most likely foes in the near future, in the case of North Korea, Iraq, Iran, where do missiles fall as far as the threats compared to say artillery tubes, compared to a smuggled-in biological or chemical weapon, compared to tanks on the ground, a submarine fleet of the Koreans? Where do missiles fall, in your opinion, as to the threats in the three most likely places for something to go wrong right now?

General RALSTON. Let me try that this way. Each varies by country.

Mr. TAYLOR. Well, let us start with North Korea, where do missiles fall as far as the threat to first the Americans stationed there but also to our allies, the South Koreans?

General RALSTON. I would have to say that in Korea, the largest threat that we suffer is from artillery, because of all the massive artillery that the North Koreans have on the DMZ directed to Seoul and directed at our troops.

Mr. TAYLOR. And that is what? About 12,000 artillery and rocket tubes, something in that?

General RALSTON. They have enormous quantities. I do not have the exact number now.

Mr. TAYLOR. OK.

General RALSTON. I do not want to minimize the missile threat. It is certainly something that we have to react to.

Mr. TAYLOR. OK. After the artillery and rocket tubes, what would be the next largest threat with regard to the Koreans?

General RALSTON. I would have to say the size of their army. They have got an awful lot of troops and putting the artillery barrage down, then they will try to march their troops south.

Mr. TAYLOR. And where would missiles fall in this theoretical contest should it start this month?

General RALSTON. Missiles obviously are a threat. They are in there today. They are real. It is something that we would work very hard to take out their missiles, and as we worry about weapons of mass destruction, then they are really a problem, whether that be nuclear, chemical, or biological.

Mr. TAYLOR. OK. Well, let us change the scenario to a confrontation with Iraq, an armed confrontation. What do you consider to be the largest threat from the Iraqis, second, and the third?

General RALSTON. I would say that the largest threat happens to be their tanks and their Republican Guards and their ability to

march south. The only reason I do not put missiles up at the top of that is because we have got the UNSCOM mission there that is working very hard to make sure that they keep their missiles out of the way. We believe they have some missiles, although we do not believe they have many, and we do not believe that they are necessarily operational now. So I would put tanks and their ability to march either direction at the top of the list.

Mr. TAYLOR. OK. In a theoretical contest with the Iranians?

General RALSTON. I think probably in terms of the Iranians, I would put missiles at a much higher threat.

Mr. TAYLOR. Would it be the highest threat?

General RALSTON. I would say that it is probably one of the highest threats.

Mr. TAYLOR. OK. If I may, doctor, and I understand where the gentleman is coming from, and I applaud him for having some concerns. That is what we are here for is to seek out the concerns against our Nation and respond to those threats and try to do it in as timely a way as possible while not leaving vulnerabilities in other areas, which is if you have sat through one of the Defense authorization bills what we are trying to do is put together that total package. But is it not also safe to say that as you are making progress in addressing threats, that the rest of the world is not standing still?

I was surprised to hear that there are 70 countries that have antiship cruise missiles. That is a lot of countries. I was not aware of that, and, of course, we knew about the more than a dozen that have either nuclear, biological, or chemical; but this is certainly so that your target, in effect, is moving all the time. What you have to be able to respond to is changing all the time, and I guess a fair question is will you ever or is it realistic to think that you could ever get there since everyone else is also investing money?

I remember reading the GAO report on the F–18 E and F, where they pointed out that we may have the world's most superior fighter when this is done, or the F–22, and yet in the gulf war we lost a large percentage of those aircraft that we did lose to shoulder fire and very cheap weapons. And so even if you get great up here, there is something down here that continues to be a threat. The kind of security that Mr. Weldon would like to have our country have that Mr. Hunter would like us to have, is it really attainable? Can you ever totally defend the United States of America against missile attack regardless of how much money this Nation invests?

Mr. KAMINSKI. Mr. Taylor, let me respond briefly and then maybe ask General Ralston to respond. I think you have actually put that in a very eloquent way when you think about it.

Mr. TAYLOR. That is unusual for me.

Mr. KAMINSKI. Because none of these elements is constant. When one talks about creating an effective defense, you really have to think about what—you have to anticipate a lot of possibilities. This is probably not a situation in which there are going to be zero leakers. That is I do not think it is possible to completely deal with all eventualities. The issue is dealing with the important ones, put them in priority. In a sense, we have a stool that has three legs under it.

One is what is the threat doing? Another one is what is our technological capability? And a third one is what is affordable in the end is that we have to balance off these various priorities. And these three actually, they relate in a very symbiotic way. We can deploy capability very much in advance of when it is needed. Now that is safe and in that sense it is a good thing to do. But while we are doing that, we are drawing resources from another area which may be a bigger problem for us to deal with, and that is what we are trying to balance here. If you deploy something prematurely, and the threat continues to advance and you cannot advance that capability, then you are stuck with a situation in which you may be paying very high operating costs to sustain that capability and you are falling behind.

And if, on the other hand, you deploy late, and there is a big threat out there and you do not have the means to deal with it, that is a problem as well. I think if I put this in context and what we are trying to do with our National Missile Defense Program, obviously there is not agreement on exactly what the threat is. You would notice that we are not sizing the program to deal with a threat that is the ability to deploy in 15 years. We are putting some hedge posture into what the discussion of the threat is. Our belief is it is prudent as we start to balance these three legs of the stool to advance us to the point where we are only 3 years away from deployment, but then we want to make a continued judgment and we want the Congress' part of that judgment with us to look at the other legs, to look at what the threat is doing, to look at what the technology is doing, and at any given time to see what this costs, to see how this trades against the other things we must do with our scarce defense resources. That is what I think we are trying to do here.

General RALSTON. I would only add to that that one of the problems that we struggle with on our side of the river and the problems that you struggle with over here is trying to strike the right balance. We need to balance our force structure against our readiness of those forces and against the proper modernization of those forces and even within that modernization, as Dr. Kaminski says, you need to balance. So it is very, very difficult to strike this balance, and the best we can do is have people with using their best judgment and their best intentions to try to come to the right mix.

Mr. KAMINSKI. If I may add one more thing——

Mr. HUNTER. Sure. Go ahead.

Mr. KAMINSKI. We had a discussion, for example, Mr. Weldon raised the issue about THAAD having been to the program office, some sense that perhaps THAAD could be fielded in 2003. That is a reasonable issue to have discussion on. In my opinion, that may well be feasible. That is an issue of out-year money. It is an issue in which there is room for informed debate which we are happy to supply data to and allow you to come to your own conclusion about what funding is proper. That will probably increase the risk of the program somewhat. That may be a reasonable risk to bear. So that is a dialog, Mr. Hunter, that from my perspective in this aspect of trust, we will supply you data and we will have an informed discussion on that to allow us together to reach a decision is 2004 right or is 2003 right? We are not closed out on that issue.

Mr. HUNTER. OK. Let me respond to a couple of the things that came out as a result of your dialog with Mr. Taylor. First, drawing resources and balancing resources. General, I would just tell you that is no longer your decision, and it is not your decision because we funded all of the Clinton requests in this budget, and then we added money for missile defense. That did not come from anything else. That did not come from your request for tanks, for ammunition, for anything else, or for aircraft. In fact, we plussed up those accounts also.

Now, second, we have gone past, at least with respect to theater missile defense deployment and the national missile defense deployment, with respect to the national will or the national decision, there is a public law that was signed in 1991 that said you shall, you shall aggressively work to deploy, deploy, theater missile defenses by the mid-1990's, by time that is passed. So for you to come back and say now we really have to make this decision about whether or not we are going to deploy is a total disregard for the law.

The American people spoke. All of the defense leaders in the House and Senate, people like Mr. Nunn, I think, signed on to the Missile Defense Act that became law, and we all manifested the will of the American people. And this has been a good hearing. We have gone for quite awhile now, but the idea that when you clear everything away with respect to theater missile defense, what we have after 5 years in the field now ready to stop enemy missiles is basically no more than the Hawk, which is an extremely limited system designed basically to handle aircraft, and the PAC–2 system, which is also limited and which we have agreed does not qualify as a high level, highly effective theater missile defense system, which does not have the ability to defend a city like Tel Aviv, which was one of the targets in Desert Storm. So that is what we got.

That is what we have in the field. And, Dr. Kaminski, you know, I have a great deal of personal respect for you. I think you serve this country very well, but you think that after 5 years, this was the best, this upgraded PAC–2 in terms of fielded systems, was the best we could do?

Mr. KAMINSKI. No; I do not, Mr. Chairman, think it is the best we could do. I do believe we have aggressively pursued this deployment. I do believe we have enhanced the capability of the basic——

Mr. HUNTER. No; but I mean in the time period. In other words, you are saying this is what we got. And you either got to say it is the best we could do or we have not done the best we can do.

Mr. KAMINSKI. I think we have the PAC–3 coming along. I agree it is not deployed. I do not think we have been imprudent in working on that program, and I do not think at least since I have been in my job that the PAC–3 Program, for example, has been funding limited. In fact, as I said earlier in the review I conducted last year, I was looking to balance and reduce resources in this area. That is an area that I determined was not fully funded the way it needed to be, and we added a couple of hundred million dollars to that program to keep it on track, at least to do the best job we could. As a fact of life matter, the schedule for that program has

slipped a bit. It has not slipped for want of money. It has slipped for technical and execution issues.

Mr. HUNTER. OK. One last question here. General Luck did object to the adjustment that was made in the THAAD UOES deployment, the slippage that came in the THAAD system. He was the commander in Korea and made that objection. I guess my question is in context of Goldwater-Nichols which was intended to put the CINC's, the commanders in the field, in a decisionmaking, at least a highly credible consultative role in terms of system development, why was he not listened to? He is the guy in the field that has the troops who are naked to Scud attack, and he wanted to see THAAD coming on as fast as possible to defend his troops? That was a very, that idea of having the field commanders have a say, a high level say, in what our systems were deployed and when, seemed to have been ignored in that situation? He got basically back to Korea a "Dear John" letter, if you will. Why did we not listen to him?

General RALSTON. Mr. Chairman, let me address that, if I may. General Luck did come in with a strong statement in support of THAAD. While I was not in the building at the time, I convened the JROC yesterday to go through again the history of that, and as a result of his message that came in, the JROC went back to Dr. Kaminski and recommended that we add money back into the THAAD Program, which was added back into the THAAD Program to get the UOES advanced. So my point to you is that General Luck did have an input and it was listened to.

Mr. HUNTER. But there was still slippage from 2001 to 2006; right?

General RALSTON. This was with regard to the UOES Program to get it forward so that we have the two batteries that he requested that are available to get there.

Mr. HUNTER. But that is what he wants. He wants the batteries in the field; right?

General RALSTON. Yes, sir; and we are trying.

Mr. HUNTER. And you say we listened to him, but you did not provide him with what he wanted which was accelerated deployment; is that right?

General RALSTON. What we did was add the money back to get the UOES Program that he wanted earlier. Now with regard to whether or not you make it 2006, 2004, then I have to go back and fall back to Dr. Kaminski on what is the right technology and what it will support and so forth.

Mr. HUNTER. OK. Thank you, gentlemen. I think Ms. Harman had another question and then we will try to—we will have a generous 5 minute break here and come to our second panel.

Ms. HARMAN. Well, it is more of an observation, a several part observation. First of all, Mr. Chairman, I think was this is a very good hearing. And I think the intense interest of this committee has caused the Pentagon to make certain that the priority we attach and the priority in the law are observed, and I think that is at least what I am hearing, that Dr. Kaminski not just intends to comply with the law, but intends to comply with the priority that Congress attaches to this program.

I heard you say something that I just want to comment on. You talked about Congress directing actions. I agree with that. I am for those actions. But I also hope that we would have the——

Mr. HUNTER. And the President because the President signed that law.

Ms. HARMAN. I do not disagree with you, but we need to give the experts some room to assess whether the technology is adequate and to make some recommendations—that is what you are hearing—about the structure and timing of some of these programs so that we spend our dollars wisely. I am for the plus-ups. But I know that in the future—just let me finish the sentence, and I would be happy to have you make any comment—I know that for the future those dollars will not be unlimited. They cannot be unlimited in the context of balancing our budget. So let us be sure that every dollar goes to prudent technology and effective deployment. That is what I am saying. I think you are saying that, too. I just wanted to be sure you were saying that.

Mr. HUNTER. Well, actually, no; I am saying something different from the theme that has been echoed here today. And this is why I tell my friend from California when we directed as a Congress and as a President to deploy highly effective theater missile defense systems by the mid-1990's, we did that after consultation with our military leadership. Congress did not run out in the wake of Desert Storm and the attack on our service people in the barracks and set a bar over which we knew we could never go. We did not shoot ourselves in the foot, at least not intentionally.

We consulted with the Pentagon and the answer that came back to the people who are concerned about defense in the House and the Senate was this is doable. Now the only answer you can derive today because of the fact that the only thing we have out there is a very limited PAC–2 upgrade actually deployed in the field and we are past the mid-1990's, the only answer you can come up with—there is only two answers. First, we have not aggressively pursued this program or, second, we did something, we set a goal that was technically undoable when we set it in 1991. There is no room for other answers. So one reason we had this hearing today was to determine what has happened, how come we do not have this system to protect our troops?

And is 5 years after the fact, after we gave this national mandate, is 5 years a reasonable length of time to achieve what we set for ourselves to achieve which was deploy highly effective theater missile defense systems by the mid-1990's? And we do not have them. And why do we not have them? And the essence of Mr. Kaminski's testimony has been that this is very difficult, very complex, we are hitting a bullet with a bullet. We said we were hitting a bullet with a bullet when we shot those things down with the Patriots in 1991. So we have used that term now for 5 years, actually about 10 years, and that is not, while it is difficult, is not mission impossible. So the question is, I think, and it is an appropriate question, was that an impossible level or standard that we set when we said deploy these by the mid-1990's or have we failed to pursue this thing as aggressively and with as much focus as we should have? And maybe you could elucidate? What happened, Dr. Kaminski?

Mr. KAMINSKI. I believe we have pursued this aggressively.

Mr. HUNTER. OK.

Mr. KAMINSKI. I believe what we have fielded today is, as I said, in terms of the volume defended something like an eightfold or if we actually add the sensors and the like that go with it perhaps a tenfold improvement over what we had in Desert Storm. I believe what we have there will be effective in defending our troops. I think it will be less effective in defending cities if your criteria is no leakers. I think the problem here, though, is not one of——

Mr. HUNTER. And how about chemical and biological agents?

Mr. KAMINSKI. Let me come to that in a minute. I think the issue with respect to protecting cities comes to the standard as what was meant by effective defenses. I do not think there was precise agreement on some of those standards that were set. Those were broad terms. With respect to the issue of chemical and biological weapons, we very quickly dismissed what was on the second bar of my chart, the value of deterrence. I think you have to look at this as a whole problem and I think we did have some deterrent aspects working there that perhaps were useful to not see chemical and biological weapons rain down on our troops in Desert Storm.

Mr. HUNTER. Well, just a second. Dr. Kaminski, that was not the directive by the law. I know we can fire nuclear systems at people, and I know that there were strong statements made, in fact, the British made open statements that if there was any chemicals or biological weapons used in Desert Storm, they would, at least their field commander said he would retaliate with nuclear weapons. But that was not what Congress said. Congress said you shall deploy missile defenses, and I think it is a little bit of an evasion to come here and say, well, let me go through the array of treaties and deterrent systems that we have to keep the guy from even launching the missile in the first place. We saw missiles launched.

We want to be able to stop those missiles if deterrence fails, and we did not say build a deterrence or underscore deterrence. We said build a defensive system that will stop these missiles in flight, and in my estimation your earlier testimony, I think, was your best testimony in this hearing, in which we walked through Hawk, which is very minimal value against anything that has got slight speed to it, and PAC–2, which even if it is an upgrade over what has been described in this committee as dubious performance and very incomplete performance by Patriot that was fielded in Desert Storm, is not able to handle the chemicals, not able to handle biological systems, and all the bad people have those.

So we did not say establish deterrence. We said build a system and deploy a system and it "ain't" there. And so I guess my next question to you is do you think that we put the mark too high when we said in 1991 have highly effective theater missile defenses downselected and deployed? And obviously we used the word "downselected." We did not mean a Patriot II upgrade. You know that. You do not downselect the Patriot II upgrade. You downselect systems like THAAD and Navy Upper Tier and those systems. So we were not contemplating that you just improve the Patriot and you would say you could come in here today and say, well, I think we have done what you told us to do. So do you think we set the mark too high?

Mr. KAMINSKI. If where the mark was set——

Mr. HUNTER. Well, you have got the law. I mean you have read the law.

Mr. KAMINSKI. But the problem is that we are adding things of interpretation in the law, and that is if the standard was we are to have no leakers against a large populated area like a city——

Mr. HUNTER. I do not think anybody said no leakers. I think we said exactly what we said. We said highly effective.

Mr. KAMINSKI. The problem is really one of understanding what highly effective means.

Mr. HUNTER. Well, that is why I asked you.

Mr. KAMINSKI. It really does.

Mr. WELDON. Will the gentleman yield?

Mr. KAMINSKI. Let me give you an example here. The systems we had in Desert Storm and even the PAC–2 system, those are not hit-to-kill systems. Those are using fragmenting warhead. And part of the time the problem is what does one mean by "kill," because when a warhead goes off, it may cause the incoming ballistic missile to veer off course in a major way. But the warhead may still land. Now if we were defending troops, that would have been effective because had it been targeted against a particular troop location, it now would have missed. If we are defending a city that is 10 miles in radius, simply deflecting it off its course would not have been effective.

Mr. HUNTER. But the point is, too, when you go to leakers, to leaking missiles coming in, you mentioned shoot-look-shoot.

Mr. KAMINSKI. Yes.

Mr. HUNTER. And that means being able to evaluate how many you have knocked out or which ones you have knocked out and shoot the remaining ones.

Mr. KAMINSKI. Shoot again, yes.

Mr. HUNTER. You need to have that to have minimal leakage; right?

Mr. KAMINSKI. Yes.

Mr. HUNTER. PAC–2 cannot do that; can it?

Mr. KAMINSKI. PAC–2 is going to have limited firing opportunities.

Mr. HUNTER. Well, that is my point.

Mr. KAMINSKI. Yes.

Mr. HUNTER. So if you define one aspect of highly effective theater missile defense systems as having shoot-look-shoot capability, the ability to shoot, evaluate, and then get the survivors before they kill your people, then PAC–2 "ain't" it; is it?

Mr. KAMINSKI. No, it is not the full solution against that threat, but——

Mr. HUNTER. OK.

Mr. KAMINSKI [continuing]. Really what I am trying to communicate is I think there is a lot of room for interpretation in that standard.

Mr. HUNTER. But wait a minute, though. That is a common point of interpretation. If we agree that a highly effective theater missile defense system to be a highly effective system needs to have shoot-look-shoot capability, then PAC–2 by definition is not a highly effective theater missile defense system; is it?

Mr. KAMINSKI. By itself, it is not.

Mr. HUNTER. Well, then that is my point. So you and I agree that the one system that we have deployed does not meet the definition that the law says we were supposed to have by now?

Mr. KAMINSKI. And it depends whether one believed shoot-look-shoot had to be in——

Mr. HUNTER. But you just agreed with me that that cannot be a highly effective theater missile defense system because it does not have that criteria; right?

Mr. KAMINSKI. No, I cannot agree that broadly. For example, if our concern is protecting a particular group of troops, the systems we have fielded will make a big difference.

Mr. HUNTER. Well, OK.

Mr. KAMINSKI. Even the Hawk system.

Mr. HUNTER. We did not say make a big difference, Dr. Kaminski. I think you know what we meant and when we said downselect these systems, we were not talking about simply upgrading Patriot. There is no downselection program involved there. That involves taking major systems that are much more capable than the systems that we had, evaluating them. I mean we were looking at that time at this array of proposed systems that we are working on right now, and we thought we would have them a lot sooner. But, anyway, I think we have gone over—I think we have covered this ground.

Ms. HARMAN. I think, Mr. Chairman, I do not whether I still had the time, but I would just suggest that we spend our time looking forward rather than backward because I think we have a program to pursue over the next 6 to 15 years that is quite impressive. But if we are going to look backward, let us not just look backward 5 years, let us look backward to 1980 when we began this whole program, and I think we could all with the benefit of hindsight have spent our dollars better starting from the beginning, and I just would hope, as the optimist around here, that working with people we trust and have respect for and bringing our own expertise and diligence to this matter, going forward, we can deploy, and I am using that word "deploy" a theater missile and national missile defense system that will be highly effective. And those are my comments.

Mr. HUNTER. I thank the gentlelady, but I want to remind her that the way we review, we are an oversight committee, and the way we review is looking at what has happened and setting goals for DOD, locking those goals into law, and then bringing them back and asking them if they have done it.

Now, this has been a little wirebrushing today, at least from my position it is, because we have not done it. And I think that the essential testimony of Dr. Kaminski is the PAC–2 is not a highly effective theater missile defense system, by the definitions, by the agreed-on standards that we sat out for the PAC–2. And so we either set too high a goal for ourselves 5 years ago, or we have not complied with our duty to the American people to get this doggone thing out there and get systems deployed because the troops do not go out when the balloon goes up. The troops are there now. We got troops in the Middle East and other places in theater exposed all

over the world. So I think we have our respective positions and I think we have covered that.

We may have covered it to the point where our second panel is ready to leave and go home. But let me yield to Chairman Weldon and then we will take a 5-minute break. We will get our second panel, and Dr. Kaminski and General Ralston, I want you to know I have great respect for you personally, and we think you have a great deal of expertise, and I think personally we have got the ability to accelerate these programs.

Mr. WELDON. Thank you, Duncan, and thank you all for coming. I will not go through the other questions I had. I think you have probably been grilled enough from the tone of the conversation when I came in although you know my feelings. I have given you my thoughts. You know my concerns, and we pledge our support aggressively, as I told General Lyles at breakfast this morning, for the funding that he needs to do the job and the task that he has been assigned, and we will be there in the next session to do that. We thank you for coming. We thank you for the service to the country, and before we adjourn for a 5-minute recess, I would ask you to stay here because I have a special guest who has also joined us. In fact, it was why I had to miss part of briefing.

I have in the anteroom the former Ambassador to the United States from Russia, Mr. Lukin, who is a good friend of mine, who, in fact, is chairing the Russian counterpart in the Duma to our initiative in the Congress. He also, as you know, now currently chairs the International Affairs Committee in the Russian Duma. I would like to bring him in. I would like you all to say hello to him and to welcome him so I would ask the chairman to temporarily adjourn the session for 5 minutes. We will introduce Mr. Lukin to both panels, and then we will convene the next panel. Thank you all. Did you want to make a comment?

Mr. KAMINSKI. Mr. Chairman, if I might just make one comment actually related to this subject? You asked earlier in your remarks were we doing anything to lean forward and cooperate where it makes sense with Russia? And I just wanted to comment on that. I had the opportunity 2 weeks ago to meet with two gentlemen, Victor Mironov from the Ministry of Defense and Alexander Kerchelkin, who is the director of Rusvoragina [phonetic] and one of the issues I advanced in that discussion was getting on with one of our key cooperative experiment programs in this field, the RAMOS program.

I just wanted to let you know from my perspective, as I have discussed with you privately, this is an issue we are going to continue to try to advance. I think there is benefit in cooperative activities in the field. Thank you.

Mr. WELDON. Dr. Kaminski, I agree with that. As you know, we put $20 million in the budget just for Russian-American cooperation. Please join me in welcoming our good friend, Ambassador and now chairman of the International Affairs Committee Vladmir Lukin, and with that we will adjourn briefly so we can introduce him.

[Recess.]

Mr. WELDON. The hearing will come to order. The subcommittees will come to order. And I appreciate the indulgence of our second

panel for that brief interlude so that we could introduce Mr. Lukin who happened to be visiting and is here from his trip to New York with the Russian delegation.

The second distinguished panel that we have before us, and I do appreciate our witnesses sitting through the first panel for some very important testimony, consists of Frank Gaffney, who has been here many times, director of the Center for Security Policy; Bill Graham who is also—actually all of these witnesses have been here many times before—former White House Science Adviser and national leader; Keith Payne, president of National Institute for Public Policy; and Angelo Codevilla, professor at Boston University. Four distinguished witnesses who represent a broad range of expertise in the area of threat, threat assessment, missile defense, both theater and national space-based sensing, and cruise missiles, as well as a broad range of other defense and foreign policy issues.

Because of time constraints, particularly on the part of Bill Graham, who has to catch a plane, we will allow, Bill, you to go first and take as much time as you may desire with your statement.

STATEMENT OF WILLIAM R. GRAHAM, FORMER WHITE HOUSE SCIENCE ADVISER

Mr. GRAHAM. Thank you, Mr. Chairman. I would like to submit my full statement for the record, if I may, and just address one issue——

Mr. WELDON. Without objection.

Mr. GRAHAM. Thank you—which responds to testimony given earlier this morning, but puts it in a somewhat different perspective. This has to do with the combined effects of the proposed demarcation agreement on theater missile defense systems plus the constraints that the Antiballistic Missile Treaty itself is having on theater defense systems. Those effects taken together are enormous. That is a major issue that we face in terms of theater defense systems today other than the timeliness with which we are going to get to them that Mr. Hunter was discussing earlier.

And let me explain why it is such an enormous effect. First, there is no bright line difference between theater missile defense and national missile defense. Any theater missile defense which has reasonably good capabilities will have some national, that is intercontinental missile, defense capabilities as well. And the country is finding itself put in more and more difficult and I believe unacceptable position by trying to make a bright-line distinction between theater defense capabilities and ICBM capabilities, not only because the things that we call theater other countries call national when we are on their homeland, but because the technical capabilities does not divide between short-range missiles and long-range missiles.

It is being divided arbitrarily and with great disadvantage to the theater defense systems, for example, by the use of off-board sensing that you described and discussed earlier, the SMTS base and missile tracking system being a primary example of that.

A statement was made in the morning testimony that demarcation places no constraints on our current theater defense programs. Let me elaborate that. Even before the demarcation agreement phase one was reached, the THAAD system was constrained by an

arms control compliance review to be able to use no off-board sensing information whatsoever, and as far as I know, that constraint is still in force today.

On missiles coming at the theater defense system, the THAAD, from a range of 1,500 kilometers, for example, this makes a difference of a factor of 10 in the area that the THAAD can defend, and as the range of the quote "theater missile" gets longer, and this is only 1,000 miles we are talking about, that ratio, that is to say, the decrease in effectiveness because of the ABM Treaty imposed to constrain THAAD to have no off-board sensing goes up very rapidly, and somewhere about page 10 in the package I have put together you will see a curve of that ratio, which is also the added cost, not added but multiplied costs you would experience if you wanted to defend an area with THAAD and had to do it under the constraints that are imposed today by the ABM Treaty.

This is the biggest effect that we have in degrading the capabilities of the THAAD theater missile defense system today, and it is brought about directly by the ABM Treaty. I would not be surprised if it is in some way referenced in the demarcation agreement as well, perhaps as saying, well, you cannot use space-based sensing for theater systems, but that remains to be seen.

Concerning spaced-based sensors, and the space and missile tracking system [SMTS], the earlier testimony of Dr. Kaminski referenced the Defense Science Board task force that had been convened this summer and recommended a 2004 deployment. Normally, I do not talk about advisory work I do within the administration. However, I was a member of that task force, and since it was used as a reference, again, I feel that it is important to elaborate that position so it not appear that I am in full support of that and that for some reason 2004 is a limitation.

Congress said, as I recall, in last year's legislation, which was signed into law by the President, begin to deploy the space and missile tracking system by 2003. As far as I know, the administration then held up first $135 million of the funding for that and then $51 million of the funding for that, and basically lost a year in the deployment program of SMTS, the year being fiscal year 1996.

Nonetheless, the task force said there were three options that could be pursued, three viable options they saw. The options precede from a strictly sequential current baseline deployment in fiscal year 2006 to an accelerated higher risk program deployment in fiscal year 2002 that dispenses with any flight demonstration satellites. In other words, the DSB task force that I served on said that there was, in fact, an option which allowed the deployment of SMTS to begin in fiscal year 2002, not just fiscal year 2003, and I think there is no disagreement in that among the members of the task force.

Of course it would be higher risk in the sense that if you can do something by 2002 or you can do it by 2004, well, you have always got 2 more years to get it right in if you do it by 2004 so it is more or less a tautology that the 2002 is higher risk, but the task force did not say it was high risk. It just said it was higher risk to do it sooner. Had we been entirely candid, we would also have said that it will be less expensive to do it sooner because when you do

these things quicker, you cannot spend as much money. The overhead costs are not as great. The sustaining costs are not as great, and you get it less expensive, and so I would argue, not as a part of the task force, that the 2002 deployment would still be more cost effective than the 2004 deployment and at worst you could fall back on 2004 if you were not successful at 2002. But I can find no reason whatsoever that the country could not be successful at 2002 and certainly 2003 for that deployment.

I think when the effects of the demarcation and the demarcation agreement is fully described to the country, and I have not seen the formal version of that yet—only heard the announcement that it was completed—there will be many statements crafted in their wording extremely carefully, which will give the impression, which will give the impression that the ABM Treaty is having no effect on our theater missile defense capabilities and that the demarcation agreement is only for the moment at least addressing or at most limiting us to a 3-kilometer-per-second interceptor and having no other effect on our theater missile defense capabilities.

I implore you to look at those statements under a microscope. The devil will be in the details of what is being said, and I have given you one example in terms of the off-board sensing today, something that is, in fact, the biggest variable on how THAAD wasn't even addressed other than briefly by Dr. Kaminski when he did say the off-board sensing was a major parameter, but that is a major parameter which is being denied the THAAD system by the current interpretation, unilateral interpretation by the United States of the ABM Treaty. With that, Mr. Chairman, I would like to conclude my comments on the testimony this morning and submit my full statement for the record, and unfortunately excuse myself for an airplane that is not going to wait for me.

Mr. WELDON. Well, thank you very much. We appreciate your contribution. It will be in the record and for everybody to read and profit from, and even though we do not have a lot of members here right now, they will still have access to it, and that will help, too. We appreciate it. Thank you.

Mr. GRAHAM. Thank you, Mr. Chairman.

[The prepared statement of Mr. Graham follows:]

THE ANTI-BALLISTIC MISSILE TREATY:

THE PROBLEM DISGUISED AS THE SOLUTION

Testimony Before the U.S. House of Representatives

Committee on National Security

Statement of

William R. Graham

September 27, 1996

Mr. Chairman:

Thank you for the opportunity to testify today U.S. ballistic missile defense plans, programs, and policies. Ballistic missile defense, against both long range and short range ballistic missiles, is critical to our national security and in need of immediate attention.

THE BALLISTIC MISSILE THREAT

On November 14, 1994, President Clinton issued Executive Order 12938, "Proliferation of Weapons of Mass Destruction," which read in part: "I, William J. Clinton, President of the United States of America, find that the proliferation of nuclear, biological, and chemical weapons ("weapons of mass destruction") and of the means of delivering such weapons, constitutes an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States, and hereby declare a national emergency to deal with that threat."

On November 9, 1995, President Clinton issued a "Notice of Continuation of Emergency Regarding Weapons of Mass Destruction", which stated, in part: "Because the proliferation of weapons of mass destruction and the means of delivering them continues to pose an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States, the national emergency declared on November 14, 1994, must continue in effect beyond November 14, 1995."

These two Presidential Executive Orders provide a clear and concise statement of the immediate danger posed to the U.S. and its interests by "the proliferation of nuclear, biological, and chemical weapons and the means of delivering such weapons." (Emphasis added). In view of the President's excellent characterization of the proliferation problem, the message he sent to Congress with the veto of the first 1996 Defense Authorization should be noted. It said, in part, "First, the bill requires deployment by 2003 of a costly missile defense system able to defend all fifty states from a long range missile threat that our intelligence community does not foresee in the coming decade....The missile defense provisions would also jeopardize our current efforts to agree on an ABM/TMD demarcation with the Russian Federation."

President Clinton's 1996 Defense Authorization Bill veto statement, and more generally the terms of the administration's position on when the absence of need to deploy a national missile defense, reflect a basic inconsistency in its views on the importance of ballistic missile defense.

The intelligence community bears some responsibility in the matter. A new National Intelligence Estimate reportedly projects no ballistic missile threat to the U.S. for 10-15 years. Yet in 1994, when Director of Central Intelligence John Deutch was the Deputy Secretary of Defense, he reported to Congress that a ballistic missile threat to U.S. territory could emerge by the end of the decade. That statement of Dr. Deutch is highly credible. In fact, the threat of ballistic missile attack against the U.S. and its allies already must be factored into responsible policy formulation. Since the U.S. values allied cooperation, deterring our allies can also deter the U.S. by indirect means. Russian threats against NATO expansion and Chinese threats over Taiwan are directed at U.S. allies as well as the U.S.

Many in the threat assessment community discount the value of acquiring key technical personnel, and the possibility of modifying existing ballistic missiles to extend their range. However, this position ignores the way in which the U.S. itself advanced its ballistic missile objectives. During 1945 and 1946, the U.S. conducted "Operation Paperclip" in order to employ Dr. Wernher von Braun and his team of German scientists and technicians, who were the same people who had been responsible for the Germany's V-2 rocket program. The transfer of these experts, along with their equipment, provided the U.S. with nearly instant ballistic missile capability. Under the HERMES Project, the U.S. soon began launching German V-2 rockets with the technical help and support of von Braun and his team. These early experiments helped infuse German technical expertise into the U.S. Army.

A year later, the development of a two-stage vehicle based on the V-2 was begun. The so-called "BUMPER" vehicle went on to establish range, altitude and speed records. By the late 1950s, frustrated by difficulties in the Atlas program, General Bernard Schriever, a pioneer of U.S. ballistic missile deployment, ordered the modification of the existing THOR IRBM to include a second stage as a means to achieve a strategic range capability. The resulting THOR-ABLE configuration was ready within a year and a half. THOR-ABLE extended the range of the THOR from 1500 miles to approximately 5000 miles. Shortly thereafter, another configuration, the THOR-AGENA, was ready.

The lessons to be learned from the U.S. history of Ballistic missile advancement are straightforward. The acquisition of key technical experts can move a country rapidly forward in advancing ballistic missile capability. In addition, the range of existing systems can be rapidly increased by incorporating additional stages.

In the 1940s, designing and fabricating ballistic missiles was challenging, but with focus, determination, and national-level support it was done very rapidly, even though new types of inertial guidance instruments had to be developed, new rocket engines and missile structures fabricated, and new fuels produced. By contrast, in the 1980s and 90s, the West's schools and universities teach advanced technology to students from all over the world, missile designs are well understood, missile components are available on the world market, and whole missile systems can be bought and delivered, as in the case of the Soviet SCUDs to China, the North Korean SCUDs to Iraq, Chinese M-11s to Pakistan, Chinese CSS-2s to Saudi Arabia, and so forth. Since most of today's ballistic missiles are mobile, training and launching by customer nation crews can take place in the missile's country of origin, so that the first launch of a missile from a customer country may occur without advance warning.

North Korea is one of the smallest, poorest countries on earth and one of the most isolated geopolitically. Yet it is able to produce and export ballistic missiles. If North Korea can accomplish this, there are few countries that cannot.

Ballistic missiles do not need to have a long range to threaten the United States. In the 1950s, the U.S. launched several ballistic missiles from the deck of a ship, and sent them to high altitudes where their nuclear weapon payloads were detonated. Most of the

population of the U.S. lives near the East and West coasts, and thus is highly vulnerable to a ship-launched missile that could be covertly deployed in the merchant traffic several hundred miles at sea. The modifications to such a ship would not need to be obvious, and a few missile test launches could be performed in remote locations to avoid detection.

In view of the concerns discussed above, there is no reason to believe that the U.S. cannot threatened by ballistic missile attack today, both at home and abroad, by a determined adversary.

THE ABM TREATY: PROBLEM OR SOLUTION?

Twenty-four years ago, the U.S. and the Soviet Union negotiated an offensive arms control treaty—SALT I—which the U.S. intended to limit the build-up of the Soviet ICBM force. In conjunction with that treaty, the two adversaries also negotiated the ABM Treaty, which was specifically intended to assure the continuing vulnerability of the people of both the U.S. and Soviet Union to ballistic missile attack.

The SALT I Agreement was a failure in limiting the Soviet ICBM force: the Soviets increased that force massively in both number and capability after the SALT I Agreement went into effect. Reductions in the number of Soviet ICBMs did not actually occur until the end of the decade of the 1980s, well after President Reagan's Strategic Defense Initiative had been put in place.

In 1983, President Reagan called for an end to U.S. vulnerability to ballistic missile attack, and directed that the Strategic Defense Initiative (SDI) be pursued. Since that time, the SDI and the subsequent Ballistic Missile Defense program have continually been undermined by the ABM Treaty.

It is difficult to overestimate how profound this undermining has been. Not only has the ABM Treaty prohibited the deployment of national missile defenses, it has led to the prohibition of funding for research and development on systems which might, if deployed, conflict with the ABM Treaty. Moreover, it has made Defense Department program managers unwilling even to propose missile defense systems and test programs which in some arcane, legalistic way might be viewed as conflicting with the largely ambiguous details of ABM Treaty—even though the systems are designed expressly for purposes other than strategic missile defense.

The ABM Treaty attempted to constrain the ballistic missile defense capabilities of only two parties: The United States and the Soviet Union. (Since the dissolution of the Soviet Union, the Administration has sought to broaden the Treaty's signatories to include several states of the former Soviet Union.) Although possibly not the conscious intention of its architects, the Treaty leaves the U.S. and its people vulnerable to ballistic missiles fired from anywhere in the world. This includes ballistic missile attacks from

Russia, China, Korea, Iran, Iraq, Libya, and any other hostile country, as well as from rogue missile commanders, terrorist groups, and accidental launches from any source.

A disturbing sign of the continuing instability in Russia among the custodians of the ballistic missile systems -- the military -- appeared in yesterday's *Washington Times* under the headline Lebed Lists Woes Facing Russian Armed Forces: Moscow (AP) – "Russia's armed forces could mutiny this fall over low pay and other problems caused by lack of funding, national security chief Alexander Lebed warned in an interview published yesterday. 'Not only soldiers, but also officers are in the hospital with malnourishment,' Gen. Lebed was quoted as telling the Vechernyaya Moskva newspaper. 'There is a huge number of suicides in the army. People are forced to beg and steal ...."

The Treaty's guarantee that the U.S. will not defend itself from ballistic missile attack can only act as a strong incentive for hostile countries and groups to develop, buy, or steal and use long-range missiles armed with biological, chemical, or nuclear warheads.

This phenomenon is alarmingly analogous to the efforts by Western nations --and particularly the United States-- to limit the development of armaments in the aftermath of World War I. The 1920s disarmament movement resulted only in providing a strong incentive to those nations --such as Germany and Japan-- that clearly did not subscribe to disarmament theories to develop the weapons necessary for long-range power projection. Walter Lippman, in his book *U.S. Foreign Policy: Shield of the Republic*, summed up the Allied experiment in self-imposed vulnerability when he observed that the inter-war "disarmament movement was, as the event has shown, tragically successful in disarming the nations that believed in disarmament. The net effect was...to reduce them to almost disastrous impotence" in the face of overseas threats.

The ABM Treaty also is having a corrosive effect on the design and development of U.S. theater missile defenses. Even though the ABM Treaty does not address theater defense systems specifically, it has a strong influence upon U.S. efforts to develop such capabilities. This comes about again through legalistic interpretations of the ABM Treaty, which attempt to establish a "bright line" distinction between theater ballistic missile defense capabilities and intercontinental ballistic missile (ICBM) defense capabilities. Although labored attempts are being made to distinguish between these two capabilities, in fact no such distinction exists. All reasonably cost-effective theater missile defense systems, both nuclear and non-nuclear, will be able to defend some region of the earth's surface against intercontinental ballistic missile attack. The problem is not with the definition of theater versus intercontinental ballistic missile defense, the problem is the fundamental fallacy that theater missile defense systems are distinct and incapable of providing any defense against intercontinental ballistic missiles. It is a basic property of ballistic missile defense systems that constraints imposed to limit their ability to defend against longer range offensive missiles also limit their ability to defend against shorter range offensive missiles.

For example, in order to adhere to ABM treaty limitations as interpreted by the current administration, the THAAD development program is not allowed to develop either the hardware or the software that would allow the THAAD system to use information obtained from any sensor other that the Ground Based Radar associated with the individual THAAD missile and the sensor on the missile itself.

Prohibiting the use of external sensor data imposes a very large performance penalty on the THAAD system. That performance penalty can be parameterized in terms of the area on the surface of the ground, or "footprint", that the THAAD can defend. The effect of the ABM treaty-related prohibition on the use of external sensors can be summarized on a graph by showing the ratio of the surface area that could be defended by a THAAD missile under no ABM treaty constraint (the kinematic limit of the THAAD missile) compared with the area that can be defended under the ABM treaty-related prohibition on external sensing that is now being imposed on the system design and implementation. That ratio is shown in the accompanying graph as a plot of the defended area ratio *vs.* offensive missile range for existing offensive theater ballistic missiles.

As the range and therefore the speed on an offensive ballistic missile increases, the effect of the ABM treaty limitation becomes greater, since there is less and less time for the radar to track the offensive ballistic missile, launch the THAAD missile, and direct it to intercept the incoming missile. When the incoming offensive ballistic missile has a range of about 1500 Km, the ratio of defended areas is about 10; when the range increases to 3000 Km, the ratio rises to about 35, and should reach 50 against offensive ballistic missiles whose range is in the vicinity of 4000 Km.

Of course, an ABM treaty-limited deployment of the THAAD system could defend the same area as the unconstrained system against a 1500 Km offensive ballistic missile if 10 times as many THAAD interceptor missiles and Ground Based Radars were deployed. Such a deployment would cost the country approximately ten times as much money. Therefore, the accompanying graph also shows the cost multiplier incurred by the imposition of the ABM treaty on the THAAD theater ballistic missile defense system. That cost multiplier is large against all but the shortest range offensive ballistic missiles.

It is important to understand that the high system performance penalty and cost of imposing ABM treaty constraints on ballistic missile defense systems are not limited to the THAAD system. Since the radar on the AEGIS system has a lower performance, usually described in terms of power-aperture product, than the THAAD Ground Based Radar, and is therefore a shorter range sensor, the defended area ratio and associated cost will be even larger for the AEGIS-based ballistic missile defense system, and will become significant at even shorter offensive ballistic missile ranges than was the case for the THAAD system.

The efforts to force theater missile defense systems to have no ICBM defense capability will only result in their being "dumbed down" to significantly less capability, and even then the distinction will be arbitrary. When approached on a rational basis, the attempt to create a distinction between theater missile defense systems and ICBM defense

systems is a technological dead end. The reality is that we can have either substantial defenses or substantial vulnerability. To date, the United States has been left substantially vulnerable.

DOES THE ABM TREATY ALSO OBSTRUCT RUSSIAN EFFORTS TO DEVELOP MISSILE DEFENSES?

The argument has been made by proponents of the ABM Treaty that while it may place unanticipated limitations on U.S. theater ballistic missile defenses as well as intended limitations national missile defenses, the treaty applied equally to the Soviet Union in past years and still applies equally to the Russians today, and therefore whatever limitations it places on the U.S. are also placed on Russia. While this is the impression given in the form of the treaty, it is far from the truth in the Treaty's consequences to date for the U.S. and Russia.

More than a decade before the ABM Treaty was negotiated, the Soviet Union was fully committed to the development of the SA-5 "Tallinn" system (named for the city in Estonia where the system was first seen by the U.S.). As intelligence analyst William T. Lee discusses in his monograph Ballistic Missile Defense and "Arms Control" Follies (attached as an Appendix to this testimony), the SA-5 was both a high altitude air defense system and national ballistic missile defense system from the outset. (Since this system is armed with nuclear warheads, it does not require sophisticated "hit-to-kill" fire control and guidance technology to defend against ballistic missiles.)

Mr. Lee notes the significance of ballistic missile defense discussions held at the U.S.-U.S.S.R. summit meeting at Glassboro, N.J., in June 1967 as described by then U.S.S.R. Ambassador to the U.S. Anatoly Dobrynin in his book In Confidence. During the meeting, the leadership of the Johnson Administration attempted to persuade the Soviet leadership of the undesirability of either side building national missile defenses. U.S.S.R. Prime Minister Kosygin responded by "pointing out the Soviet missile defense systems around Moscow and Tallinn were designed to save the lives of Soviet Citizens". As noted by Mr. Lee, Dobrynin concludes "Thus the Soviet Government did not recognize a historic opportunity and responded by continuing the ABM construction around Moscow and Tallinn." In view of these comments, there can be no doubt that the SA-5 was part of the Soviet National Missile Defense capability from its initial deployment around 1967, and that the leadership of the Johnson Administration was informed of this fact at that time.

In 1980, in conjunction with continued modernization of the SA-5 system, the Soviets began deploying another defensive system, designated by the U.S. as the SA-10, which was itself later upgraded and further deployed as the SA-12. In an article in *Comparative Strategy*, 15:251-259, 1966, Mr. Lee notes that since the demise of the Soviet Union, "the Russians have consistently touted the tactical anti-ballistic missile

capabilities of the SA-10 in foreign sales efforts, and in 1994 admitted that the SA-10 had been designed against the full threat spectrum, from stealthy aircraft and cruise missiles through intercontinental ballistic missiles" in a Moscow publication. Mr. Lee goes on to note that "by the time the Soviet Union collapsed, more than 10,000 dual purpose SAM/ABM interceptor missiles were deployed at SA-5/10 complexes" along with a national network of early warning and battle management radars.

In his monograph, Mr. Lee notes that the head of the Soviet Space and Missile Defense arms control negotiating team during the late 1980s, N. N. Detinov, and a member of his delegation, A. G. Savel'yev have described the Soviet Union's objectives in missile defense negotiations in their book **The Big Five: Arms Control Decision Making in the Soviet Union**. Mr. Lee observes that "...until Reykjavik the Ministry of Defense controlled the FSU negotiating agenda (and after, as well, in my first hand experience as a member of the U.S. Arms Control Experts Group at the 1987 and 1988 Reagan-Gorbachev Summits) for the purpose of (to quote their book) 'preserving and strengthening Soviet military might, which, in this case, included weakening the potential chief enemy – the United States – by negotiations'; and the ABM Treaty was 'more a product of insufficient technological development in the Soviet Union' vis-à-vis the U.S. than a 'product of strategic analysis'.

A factual reading today of the history of U.S. and Soviet responses to the ABM Treaty can leave little doubt that it was used by the Soviet Union to block the development of U.S. missile defenses while the Soviet Union carried out a massive missile defense buildup. That buildup largely remains in place today.

WHAT SHOULD THE U.S. DO ABOUT THE ABM TREATY?

To understand the role of national missile defense, one must first understand the most important mission of the U.S. military. The primary mission of the military is not to fight wars, although the U.S. military trains constantly to be able, if necessary, to do just that. Its mission is not even to win wars, although this is certainly the objective in fighting them.

The single most important mission of the U.S. military is neither to fight nor win wars, but to resolve conflicting interests on terms favorable to the United States, while avoiding the need to resort to warfare. This primary mission is focused on supporting the goals of the U.S. and the other democracies by peaceful means.

Historically, the U.S. has been forced to go to war, with great loss of life and resources, not because its military capability was too strong, clear and certain; but when the U.S. military was weak, as it was during the era leading up to W.W.II, or when the U.S. was confused about its own national interests, as it was in the antecedents of the conflict with Korea and China, the war with Iraq, and most recently in the current

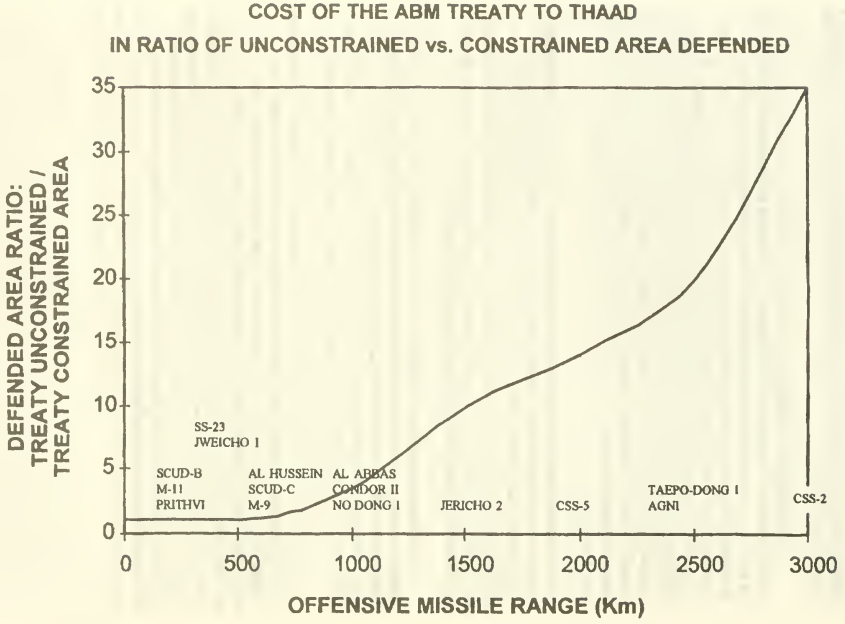
administration's reported answers to Chinese questions on the probable U.S. response to an attack on Taiwan.

This same principle applies to the role of U.S. ballistic missile defense. The primary purpose of a ballistic missile defense, both national and theater--that is, national for the U.S., or national for our friends and allies--is to discourage countries from developing offensive ballistic missiles and the chemical, biological, or nuclear warheads that make them able to produce masses of casualties. It is essential to recognize that countries are most susceptible to being discouraged from developing offensive missiles before they have made major national commitments to such programs, when they are still considering the alternatives, and when they have maximum flexibility in their future course of action. Therefore, the best opportunity for avoiding offensive ballistic missile threats is squarely before the U.S. today - not tomorrow, not next year, not 15 years from now, but today.

The problem is not to estimate the last possible time when the U.S. could deploy missile defenses. Historically, the U.S. has proven poor at making such intelligence estimates for many reasons. The challenge before the U.S. is to deploy theater and national missile defenses as rapidly as possible to discourage potential proliferators from developing, building, buying, or otherwise obtaining offensive ballistic missiles, as well as to counter the many ballistic missile threats that already exist.

Most one-time skeptics of the need for theater missile defenses became supporters after attacks on the U.S. and our allies caused loss of life in the war with Iraq. There can be little doubt that a ballistic missile attack on the U.S. would produce similar support for national missile defense. The question before the Congress is: must the U.S. wait until it is attacked by ballistic missiles before it deploys such missile defenses?

During the debate on the broad *vs.* narrow interpretation of the ABM Treaty in the late 1980s, some members of the Senate took the position that the Treaty had to be forever interpreted by the U.S. as it was presented to the Senate at the time of its ratification. This "locked in" the U.S. position on the Treaty at that time. If that is national policy, then some provision must be made for addressing events that materially change the Treaty or its consequences but take place or are learned by the Senate after the Treaty is ratified. In such event, sound policy warrants that the Treaty be resubmitted to the Senate Foreign Relations Committee for reconsideration, either at the initiative of the Administration or of the Committee itself.


COST OF THE ABM TREATY TO THAAD
IN RATIO OF UNCONSTRAINED vs. CONSTRAINED AREA DEFENDED
DEFENDED AREA RATIO:
TREATY UNCONSTRAINED /
TREATY CONSTRAINED AREA
35
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
OFFENSIVE MISSILE RANGE (Km)
SS-23
JWEICHO I
SCUD-B
M-11
PRITHVI
AL HUSSEIN
SCUD-C
M-9
AL ABBAS
CONDOR II
NO DONG I
JERICHO 2
CSS-5
TAEPO-DONG I
AGNI
CSS-2

WILLIAM R. GRAHAM
September, 1996

1989-1993: Chairman of the Department of Defense's Strategic Defense Initiative Advisory Committee.

1986-1989: Confirmed by the Senate to serve as Science Advisor to President Reagan and concurrently as Director of the White House Office of Science and Technology Policy, Chairman of the Federal Coordinating Council on Science and Technology, and Chairman of the Federal Joint Telecommunications Resources Board.

1985-1986: After confirmation by the Senate, served as the Deputy Administrator of the National Aeronautics and Space Agency.

1982-1985: Confirmed to serve as the Chairman of President Reagan's General Advisory Committee on Arms Control and Disarmament.

1971-1985: Co-founder, Division Manager, and Senior Associate of R&D Associates.

1965-1971: Member, Professional Staff, Physics Department of the RAND Corporation.

1962-1965: Served on active duty with the Air Force as a project officer at the Air Force Weapons Laboratory, Kirtland Air Force Base, Albuquerque, New Mexico.

Honors and Awards include membership in Tau Beta Pi and Sigma Xi, receipt of the Air Force Commendation Medal, the American Defense Preparedness Association's Strategic Defense Award, and the Aerospace Industry Association's Achievement Award.

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BALLISTIC MISSILE DEFENSE AND "ARMS CONTROL" FOLLIES

BASED ON A FORTHCOMING BOOK, "THE ABM TREATY CHARADE: A STUDY IN ELITE ILLUSIONS AND DELUSIONS", THIS PAPER WAS PREPARED AS AN APPENDIX TO WILLIAM R. GRAHAM'S TESTIMONY BEFORE THE SENATE COMMITTEE ON FOREIGN RELATIONS, 26 SEPTEMBER 1996. SOME PORTIONS OF THIS PAPER ALSO APPEARED IN AN EARLY SUMMARY OF THE BOOK PRINTED IN COMPARATIVE STRATEGY, VOL. 15, NO. 3, 1996.

WILLIAM T. LEE
25 September 1996

Ballistic Missile Defense and "Arms Control" Follies

In the May 1996 Naval Institute Proceedings Lt. Gen. Charles G. Cooper' USMC (ret.) related how the Joint Chiefs went to President Johnson in November 1965 with a proposal to bring the Vietnam war to an early and successful conclusion by blockading North Vietnam and bombing Hanoi. After feigning consideration, President Johnson chewed the Chiefs out in a manner that would have made an old Marine DI envious, and then threw them out of his office. Vietnam went on to become our longest and most disasterous war as scripted by Secretary of Defense Robert Strange McNamara and his "whiz kids".

Another fateful, but even less well known, decision was made a year later on ballistic missile defense of the United States. Like Vietnam, the consequences are very much with us today.

After Mr. McNamara became Secretary of Defense in 1961 he reportedly said that to deploy, or not to deploy, anti-ballistic missile (ABM) defenses against the Soviet threat would be the most important decision on his watch. In order to assist his expected decision on national ABM defense for the U.S., McNamara funded a number of study groups to analyze the strategic utility of U.S. national ABM defenses.

In 1961 U.S. intelligence began to acquire firm evidence that the Soviets probably had deployed only a few of their first generation ICBMs, the SS-6. The "missile gap" was conclusively negated by mid 1962.

For a number of years after this experience and the Cuba missile crisis, CIA and the majority of the U.S. intelligence community was convinced that the former Soviet Union (FSU) had settled for permanent inferiority in numbers of ICBMs and SLBMs, and certainly would not field the forces required to threaten the survivability of U.S. silo based ICBMs and hardened C3 facilities. However, even a few hundred ICBMs with megaton warheads posed an unprecedented threat to the U.S. population.

Meanwhile U.S intelligence also had detected Soviet ABM programs, but collection was of poor quality and very incomplete. Assessments of the evidence were highly contentious until the late 1960s when CIA forged the dominant view that persists to this day.

The Soviets started construction on a dual purpose anti-aircraft/missile system (SAM/ABM) at Leningrad in 1960, but the U.S. did not discover it until 1963. By 1964 the U.S. detected construction of a much different ABM system at Moscow while statements by Soviet leaders and missiles displayed in military parades in Red Square indicated a strong Soviet interest in ABM defenses for the entire country.

The original Leningrad system was soon abandoned and replaced by another system, eventually designated the SA-5, which initially also was assessed to be a probable SAM/ABM. Appearance of the first SA-5 complex under construction near Tallinn in Estonia in 1963 took the U.S. by surprise; its development had not been detected. Indeed the gaps in U.S. intelligence collection on design, development and testing of the SA-5 remain very wide even now.

However, in 1967 CIA decided that the SA-5 was purely an anti-aircraft system, and that the large phased array radars then under construction were for early warning of U.S. ballistic missile attack (and space track), but not for battle management, i.e. did not provide detailed target trajectory tracking data relative to an earth coordinate system to the SA-5 complexes. [1] Despite sporadic dissents by other members of the intelligence community and a major DIA challenge in 1982, CIA repeated its errors for the systems that appeared in the next two decades. CIA's erroneous assessments are the current dogma of U.S. policy makers.

In fact, in the 1950s the Soviets adopted a two track approach: ABM systems dedicated to the defense of Moscow, the apex of the Communist Party's nomenklatura; and dual purpose SAM/ABM systems--first the SA-5 then the SA-10--and large phased array battle management radars--first generation "Hen House" followed by second generation "LPAR"--for national ABM defense. [2] Moscow was defended by the best technology the Politburo had, the rest of the nation by the best it could afford.

Like the early FSU systems, the first U.S. ABM system, the NIKE-ZEUS, was derived from the NIKE-AJAX/HERCULES air defense systems widely deployed in the U.S. in the 1950s. In the early years U.S. and FSU ABM programs followed parallel courses in most respects. After 1962, however, the U.S. program took a much different turn, technically and politically.

Beginning in the late 1950s the U.S. investigated basic re-entry physics, decoys, advanced RV designs, and MIRV technologies under the Advanced Ballistic Re-entry System (ABRES) program. Despite being limited essentially to anti-aircraft technology, NIKE-ZEUS performed better than expected in this threat environment. But it shared the basic deficiencies of its FSU counterparts against large attacks, MIRVs, and a number of countermeasures.

Building on the ABRES experience, the NIKE-X system that emerged in 1963-64 was a revolutionary advance in ABM technologies combining a powerful, multi-aperture phased array radar (MAR), an IBM 360 type computer, and a high acceleration missile (SPRINT) for low altitude intercepts. NIKE-X was designed against MIRVs with high performance RVs, while the computer and the SPRINT interceptor took advantage of atmospheric filtering to discriminate precision engineered decoys and other countermeasures. The MAR radar combined battle management, target and interceptor tracking functions and was highly resistant to nuclear effects. The only high confidence way to overcome the NIKE-X system was to exhaust the stock of interceptors with real RVs.

Almost overnight NIKE-X gave the U.S. a 20 year lead in ABM technology. Neither the Moscow ABM system nor the SA-5 SAM/ABM with first generation battle management radars could cope with MIRVs. After the mid-1960s the Soviet lag in microelectronics began to widen and became the single most important technical weakness in the FSU's gigantic military forces. The Soviets proved much more adept at compensating for this weakness in strategic offensive than in strategic defensive forces.

The largest of the ABM study groups commissioned by McNamara in 1961-62 was managed by the Army, Lt. Gen. Cy Betts, then Assistant Chief of Staff for Research and Development. The Army study group consisted of inter-disciplinary teams from the Army's NIKE-X project office, Bell Laboratories, (the prime contractor for NIKE-AJAX/HERCULES/ ZEUS and NIKE-X), Stanford Research Institute (SRI), the Re-Entry Systems Division of the General Electric Co., and the Boeing Co.

The scope of the Army's study group was comprehensive: NIKE-X deployment locations, schedules, and costs; battery and system effectiveness, national strategic objectives, and cost effectiveness in the light of possible/likely increases in both the size and technical sophistication of the FSU's strategic missile arsenal in response to U.S. ABM defenses.

At McNamara's direction, reducing U.S. population fatalities against Soviet threats generated in response to NIKE-X deployment was the measure of NIKE-X effectiveness. As defined by McNamara and his systems analysts, "mutual assured destruction" (MAD) required that both the U.S. and the FSU have the capability to kill 25 to 50 percent (or 50 to 120 million) of each others' population. By 1965 this became their definition of "strategic stability".

Because FSU forces in the national intelligence estimates (NIEs) ca. 1964-67 were so puny, computer simulations of NIKE-X national deployments reduced expected damage from a Soviet attack to very low levels. McNamara's analysts then postulated the "greater than expected threat" with MIRVed systems and an arsenal many times larger than the NIE estimates in order to counter proposed NIKE-X

deployments, thus to preserve the FSU's "assured destruction" capability to kill 25-50 percent of the U.S. population ("prompt fatalities").

McNamara's analysts assumed that the "greater than expected threat" would cost the Soviets very little so that the cost-exchange ratio was around 100 to 1 in favor of the offense, i.e. the Soviets could negate each $100 the U.S. spent on ABM to defend U.S. cities with the equivalent of $1 for additional FSU ICBMs to restore the status quo ante in population fatalities.

While at CIA in 1961-62 a colleague and I had predicted that the SS-9, SS-11 and a Fractional Orbital Bombardment System (FOBS) were under development, that deployment of the SS-9 and SS-11 would begin around 1965, and that some 150-200 SS-19 silos and roughly double that number of SS-11s would be deployed by mid 1968. [3]

We predicted the SS-9 as specifically designed to attack MM Launch Control Centers (LCCs), which initially were the "Achilles heel" of the MM system--100 LCCs controlled all 1,000 MM missiles. This forecast was based upon four basic elements: the counterforce priority in Soviet nuclear targeting strategy; modernization of the SS-7 to carry a much larger payload; improvement in accuracy--"circular error probable" (CEP) to about (0.5 nm or about 925 meters); and testing of nuclear warheads weighing around 10,000 lbs. with a yield of some 20-25 MT. [4] When we put it all together the SS-9 fell out.

The SS-11 was predicted as an ICBM deployed exclusively in silos for survivability and designed to attack soft targets, which required much more modest missile accuracy and smaller warheads. The FOBS would circumvent the two U.S. ballistic missile early warning radars and hit SAC airfields before the bombers could take off.

Although officially submitted to the NIE drafters, these forecasts were not accepted. [5] A special NIE on orbital bombardment systems in 1963 did not even reference the evidence that a FOBs was under development, although it did grant the Soviets the capability to develop such a system. [6]

From 1961-62 until well into the 1970s the NIEs typically depicted Soviet military doctrine and strategy as a mirror image of mutual "assured destruction" (MAD), arguing that the Soviets would not seek parity, much less superiority, in strategic ballistic missile forces. Thus: "We do not believe that the USSR aims at matching the US in numbers of intercontinental delivery vehicles. Recognition that the US would detect and match or overmatch such an effort, together with economic constraints, appears to have ruled out this option." [7]

After leaving CIA in 1964 I became head of the threat team

responsible for forecasting Soviet responses to NIKE-X in SRI's Strategic Studies Center directed by R. B. Foster. In the 1960s that Center provided a unique environment to conduct far more comprehensive, inter-disciplinary analysis than was possible at CIA, to say nothing of other U.S. intelligence agencies.

The SRI threat analysis integrated Soviet nuclear war doctrine and strategy and objectives, long range (10-15 yr.) forecasts of Soviet strategic nuclear forces, and dollar costs of estimated Soviet responses to U.S. deployment of NIKE-X. GE and Boeing provided detailed engineering and cost analysis support. The other teams in the Army's group then integrated the threat analysis with the cost and effectiveness of various levels of NIKE-X deployments around 40 to 50 major U.S. cities.

The SRI threat team's forecasts were designed to bound the limits of FSU capabilities to respond to U.S. NIKE-X deployment over a 15 year period, i.e. to 1980. Given different assumptions about Soviet strategic objectives, we postulated a series of alternative future forces, each constrained by estimates of system development lead times, technologies, and overall budgets. The maximum response threats subject to these constraints exceeded the NIE estimates by more than an order of magnitude, and also went well beyond the limits of the "greater than expected threat".

The Army study group's team leaders from Bell, SRI, and the Army briefed McNamara twice a year on study progress. At the 1965 mid-year briefing on NIKE-X McNamara temporarily re-directed the study effort from defense against the FSU to a 20 year (1965-85) forecast of the Chinese Communist (PRC) strategic nuclear threat to the U.S., and the cost and effectiveness of deployments to counter it. That threat forecast, completed in under six weeks, concluded that the PRC would give priority to intermediate range missiles to strike targets around China's periphery, and was unlikely to field more than 50-100 ballistic missiles that could hit the U.S. by 1985.

When the Army group's team leaders briefed McNamara on this tasking in September 1965, he was highly complimentary of the analysis but deferred a decision on the Army's recommended NIKE-X deployment to counter the PRC threat. McNamara feared that approving light defenses against lesser threats could open the way to ABM defenses designed to counter the FSU threat.

In 1965-66 the SRI threat team reviewed the all source evidence on Soviet targeting strategy in a nuclear war with the U.S. and its NATO Allies. Clearly the Soviets had adopted a nuclear warfighting strategy, hence limiting damage to the FSU rather than maximizing population fatalities was the primary mission of Soviet strategic missile forces, whether targeted on Europe or the U.S. This meant first priority to counterforce strikes, i.e. destroying the enemy's delivery systems, nuclear weapons, and command-control on the

ground. [9]

Experience already was bearing out the evidence from literary and other sources. By 1966 deployment of the SS-9 targeted on the MM launch control centers was well underway, as had been predicted 4-5 years earlier. Construction of both SS-9 and SS-11 silos was booming; by 1969 the Soviets would reach and probably surpass the original forecast for mid-68. FOBS development had been re-directed but some deployment was likely. However, as a result of redundant internetting of MM silos and a backup airborne launch control system, the LCCs no longer were the "achilles heel" of MM, so building one SS-9 for each MM silo was not a likely Soviet course. Attacking each individual MM silo required MIRVed systems.

The Soviets had demonstrated MIRV technology in two space shots in 1964, so I concluded that the Politburo probably already had approved engineering development of MIRVed systems. [9] Counterforce systems probably would have first priority but MIRVs also would be designed for soft targets--military, industrial, transport and communications--as well in accordance with standard Soviet nuclear targeting strategy. The GE engineers designed the MIRV payloads, beginning with two successor systems to the SS-9, and Boeing did most of the threat cost work along with engineering studies of silo modification requirements.

The Army groups's last major briefing to McNamara in the Fall of 1966, included three major new findings based on this research and experience. First, contrary to the NIEs, the Soviets had a nuclear war fighting, damage limiting strategy; hence they would target their missiles to destroy as many of our missiles and bombers as possible on the ground in order to reduce the threat to their own air and missile defenses. [10]

Second, contrary to the NIEs, the intelligence evidence indicated that the Politburo had approved engineering development of MIRV systems emphasizing counterforce rather than population targeting. The MIRVed successor to the SS-9 (eventually designated "SS-18") would open the "window of vulnerability" of MM silos (at 300 psi) by 1975, so that few MM could be expected to survive a Soviet attack by 1980. By the same token, allocating most of their ICBMs to counterforce attacks would reduce the number of warheads targeted on U.S. urban areas, hence NIKE-X defenses (and fall out shelters) would reduce U.S. population fatalities to far less than McNamara's "assured destruction" minimum of some 50 million, even against an all out Soviet attack.

Third, NIKE-X would be cost-effective against a 15 year projection of the Soviet threat that, in retrospect, closely approximated the strategic ballistic missile arsenal actually deployed through 1980. The advances in NIKE-X technologies, combined with realistic costing of FSU missile responses, had brought the cost-exchange ratios down to approximate parity, ranging from 4:1 in favor of the

offense to 4:1 in favor of the defense depending upon various initial assumptions. [11]

Thus the Army team had demonstrated that NIKE-X would meet both of McNamara's criteria for national deployment: greatly reduced population fatalities against a massive Soviet arsenal; and, cost-effectiveness, but in the context of Soviet nuclear war fighting strategy, not the MAD mirror image of McNamara and the NIEs.

At the end of the briefing McNamara accepted the cost-exchange ratios as being no more than 4:1 in favor of the offense (down from 100:1), which made NIKE-X cost-effective by the standards he had prescribed. [12] However, in an emotional outburst during the briefing McNamara rejected the evidence that the Soviets put first priority on destroying MM silos in order to limit damage to the USSR, saying that as a Soviet Marshal he would target the entire arsenal on U.S. cities. Hence he refused to approve NIKE-X deployment to protect U.S. citizens from the FSU on the grounds of MAD theology--U.S. ABM defenses would be "destabilizing" by forcing the Soviets to respond with a massive MIRVed ICBM buildup.

The Joint Chiefs used a version of that 1966 NIKE-X briefing to ambush McNamara when they met with President Johnson at his ranch in December 1966, persuading Johnson to overrule McNamara and order deployment of U.S. national ABM, although not the defense against the FSU that the Chiefs proposed. [13] While the Chief's briefing is not available, a memo for the record prepared by W. W. Rostow, then President Johnson's national security adviser, is. [14]

According to Mr. Rostow's memo, the Chiefs recommended NIKE-X deployment at 25 cities to save the lives of 30 to 50 million U.S. citizens, if attacked. McNamara opposed the Chiefs' proposal on the grounds of MAD theology and simplistic "action-reaction":

--it was "inconceivable" that the Soviets would react in any other way but to restore the status quo ante, i.e. 120 million U.S. population fatalities;

--both sides would spend a lot of money and end up where they started, but we would waste the most because offensive weapons were so much cheaper than ABM systems;

--the danger of war would not be reduced;

--the FSU had "been wrong in its nuclear defense policy for a decade" because everything spent on all types of defenses (air and missile) had been wasted. [15]

The Chiefs saw it quite differently:

-- NIKE-X would save tens of millions of lives against a Soviet population attack, and that was a worthwhile objective;

--while they could not predict with confidence how the Soviets would react, all likely reactions had a substantial price and would divert funds from other military programs--no free lunches;

--the risk of nuclear attack would be reduced because the

Soviets could not calculate, with high confidence, how well they could penetrate NIKE-X whether they attacked population or MM silos, or both;

--replacing single RVs with MIRVs substantially reduces the total nuclear yield in any given attack. [1]

--Soviet defense programs had not been entirely wasted because they had introduced many uncertainties into our planning and it already had cost a pretty penny to counter their air defenses. [16]

In sum, the Chiefs argued that no matter how the Soviets reacted to NIKE-X deployments, the U.S. strategic position vs. the FSU would be enhanced, to greater or lesser degree depending on the specific reaction, in several areas:

--limiting damage to our population, industry, and military establishment;

--introducing such uncertainties into Soviet calculations of the outcome of a nuclear exchange that an attack on the U.S. would be much less likely;

--demonstrating that we were not 1st strike minded; and

--providing the kind of strategic force advantage that had been so helpful in settling the Cuban missile crisis peacefully. [17]

The immediate upshot of the meeting was that McNamara agreed to deploy some kind of light defense while continuing ABM R&D on thick defenses. McNamara then moved quickly to undo the decision on three fronts: discredit NIKE-X effectiveness in terms of reducing population fatalities; ensure that NIKE-X deployment was watered down so as to be ineffective against a Soviet attack; and negotiate away U.S. ABM under the guise of "arms control".

A team of McNamara's systems analysts, headed by Ivan Selin, went to work on the computer to conjure up the "greater than the greater than expected" FSU threat, optimized to exhaust all interceptors in the maximum NIKE-X deployment and still have enough RVs to kill 120 million people ("prompt fatalities"). Selin and Co. simply used the computer to generate numbers that matched McNamara's gut feelings on the one and only way the Soviets conceivably would react to U.S. ABM. Needless to say, there were no counterforce MIRVs in this threat; all the MM survived to attack the Soviet population.

In an all day meeting in the Pentagon toward the Spring of 1967, Selin's systems analysts could not defend the cost and technology leadtime assumptions underlying the "greater than greater than expected threat", but insisted that it was the basis for McNamara's position that deployment of NIKE-X designed to counter the Soviet

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[1] This effect was known as virtual attrition and was indeed substantial. For example, an SS-18 with 10 RVs has an estimated total yield of some 5 MT, as compared to 18-25 MT for a single RV.

threat would only elicit a Soviet response to restore their "assured destruction" capability to kill 50 percent of the U.S. population, thus escalating the "arms race". [18]

Meanwhile, in a move long prepared, in early 1967 LBJ offered SALT to the Politburo before deploying even a very limited version of NIKE-X. [19] At the close of the meeting at the ranch in December, 1966 he instructed to W. W. Rostow, his national security adviser, to obtain the views of several senior officials on probable Soviet reactions to U.S. ABM deployment. The LBJ Library has provided copies of the memos written by Ambassador Llewellyn E. Thomson, Deputy Undersecretary of State Foy D. Kohler, the acting Secretary of State, Nicholas de Katzenbach, Science Advisor Donald F. Hornig, and Rostow himself. CIA views were also solicited and summarized by Rostow, but the text of the CIA memo, evidently signed by Director Richard Helms, is not available.

All respondents agreed that the SA-5 (then still known as the "Tallinn" system) was just a SAM. None discussed the issue of the battle management radars. Rostow, de Katzenbach, and Helms (CIA) agreed McNamara that the Soviets would react by buying as many missiles as were required to restore their "assured destruction" capability, thus leaving both sides back where they had started but much the poorer withall. Thompson and Kohler argued that the Soviets would speed up their own ABM program before buying a lot more offensive missiles to overcome U.S. ABM. Kohler specifically doubted that the Soviets would "necessarily seek parity in offensive forces". Thompson and Kohler also perceived that the Soviet reaction probably would be greatly constrained by economic factors. Hornig did not really address the response issue, except to say he doubted that it would be resource constrained.

None of the respondents perceived that the Soviets had adopted a nuclear war fighting, damage limiting strategy, emphasized counterforce targeting, were deploying the SS-9 for that specific purpose, and were engaged in a vast MIRV development program dominated by counterforce systems, or that the Politburo had adopted preferential growth of military expenditures at the expense of consumption to pay for it all. All respondents agreed the time was ripe for negotiations that had good prospects of freezing both strategic offensive and defensive forces on both sides.

Most of the respondents may have been unaware, in whole or in large part, of the evidence available at the time on what the Soviets really were up to, but CIA may not plead ignorance on these issues. CIA files were loaded with evidence, classified and un-classified, on Soviet military doctrine, strategy, nuclear targeting, and economic priorities, and contained a good deal of evidence on the other issues as well. Rostow's summary of the CIA memo puts that organization in an indefensible position.

Former Soviet Ambassador Anatoly Dobrynin's memoirs reveal some of

the history that led to LBJ's initiative in early 1967 to negotiate ABM limitations with the FSU: at lunch on 16 January 1964 William Foster, Director of ACDA and McNamara's "soul mate", proposed that the U.S. and FSU work out a "preliminary confidential arrangement" on ABMs, "the more so since President Johnson had not yet committed himself". Foster warned Dobrynin, "Don't talk about this in public, or I'll be called before the Un-American Activities Committee". [20]

Foster raised the subject with Dobrynin again several times through 1966. In December 1966 Llewelln Thompson, U.S. Ambassador to Moscow, "confided" in Dobrynin that the U.S. was "alarmed over reports of the Soviet ABM system". [21] Earlier Dobrynin stated, "By the middle of the decade, Soviet researchers were working on the design of the first ABM networks around Moscow and in the western part of the country near Tallinn in Estonia (emphasis added). A defense against missiles, specifically for the protection of civilians, was considered in Moscow as a legitimate matter and was not supposed to arouse suspicion abroad." [22]

Evidently also around December 1966 McNamara unburdened himself on the ABM issue to Dobrynin as follows:

--U.S. ABM R&D was promising;

--many Pentagon "brass hats" were sold on it, and had recruited allies in Congress;

--it would be costly and in the last analysis not very effective because ABM defenses could be penetrated simply by adding more RVs (to the offense's arsenal to exhaust the defense's interceptors);

--"mutual renunciation seemed to be the best solution." [23]

On April 11, 1967 McNamara invited Dobrynin to lunch at his home to convey the following:

--U.S. military doctrine was based on "assured destruction" with a second strike (i.e. in retaliation);

--Soviet military doctrine evidently was based on the same principle;

--both sides had assured destruction capabilities, the "balance of terror...mutual suicide...actually kept the peace";

--the U.S. strategic nuclear arsenal was much larger than "mutual assured destruction....MAD" required as a result of overreaction to the "missile gap" and the 1961 Berlin crisis;

--although the Soviet arsenal was much smaller, it was enough for MAD;

--ABM defenses were a new element in the equation but could be countered by increasing the offensive arsenal, which was cheaper;

--therefore, it was necessary to reach an agreement to limit ABMs, recognizing that it would not be quick or easy." [24]

According to Dobrynin, this lunch set up the summit between Premier Kosygin, President Johnson, and McNamara at Glassboro, N.J. in June 1967. Johnson reportedly wanted the summit for two reasons: enlist

Moscow's assistance in negotiating with Hanoi; and impress the Soviet Government with the dangers of proceeding with ABM defenses. Kosygin was instructed by the Politburo to listen but to make no commitments. [25] Glassboro, rather than New York or Washington, was chosen for mutual protocol reasons.

In the first round of discussion between the principals, Dobrynin says Johnson told Kosygin:

--he wanted to defer the decision on U.S. ABM and already had done so for three months;

--announcement of U.S.-Soviet talks on the issue would get military and Congressional critics off his back and buy some time;

--he would like Kosygin to listen to McNamara's presentation.

Kosygin replied that "Defense is moral, aggression is immoral" but agreed to hear McNamara out. [26]

Dobrynin writes that two days earlier McNamara had told him he "would come prepared with latest American confidential scientific and military data demonstrating the essential futility of ABM systems", and that he wanted to limit the presentation to Johnson and Kosygin, and to keep it secret so that his critics would not jump him. [27]

Johnson handled presentation of McNamara's briefing clumsily; in addition to Johnson and Kosygin, evidently Dobrynin, and perhaps others, were present. This caused McNamara to shuffle his classified briefing papers into a somewhat disjointed presentation. Kosygin told Dobrynin later that he found it "unconvincing" and was disappointed by it. Dobrynin reports that McNamara's main points were:

--a defensive race would only accelerate efforts by the offense to break through;

--ABM defenses would be "destabilizing"...to "the fragile nuclear deterrent between the two superpowers." [28]

At dinner Kosygin responded to the briefing by "pointing out the Soviet missile defense systems around Moscow and Tallinn were designed to save the lives of Soviet citizens", so both sides should agree on limiting offenses first before negotiating defenses away (emphasis added). [29] But Kosygin reiterated that he did not have authority from the Politburo to begin negotiations then and there as the Americans proposed.

Dobrynin remarks, "Thus the Soviet Government did not recognize a historic opportunity and responded by continuing ABM construction around Moscow and Tallinn" (emphasis added).

To the best of my knowledge, reports of Kosygin's remarks lumping Moscow and Tallinn (the SA-5) together as ABM systems never reached DIA. Whether it was reported elsewhere I do not know. In any case, it did not deter McNamara from telling Congress six months later that U.S. intelligence, i.e. the CIA, was now confident that

the system was only a SAM, not a dual purpose SAM/ABM although such systems could have some marginal ABM capabilities. [30]

When McNamara finally announced U.S. national ABM deployment in September 1967, he watered it down to the "SENTINEL" system that had been designed to counter the PRC threat from the 1965 study. Having been designed strictly as the most cost-effective defense against the limited PRC threat, SENTINEL was virtually ineffective against a large Soviet MIRVed force. Only the full NIKE-X system could greatly reduce casualties against the Soviet threat forecast in the 1966 study. Granted, the latter was expensive, some $40 billion (ca. 1967 dollars) for full deployment (including 5 years operating costs) to protect major U.S. cities. But that was a fraction of the cost of the Vietnam War, without the after effects.

President Johnson and McNamara, however, discarded our 20 year ABM technology advantage over the Soviets in ABM capabilities for "arms control" negotiations. Much more than $40 billion, and more than 50,000 U.S. killed in action, went to Vietnam to pay for a strategy that precluded winning that war.

Glassboro coincided with the crisis in the Soviet ABM program when they scaled back the Moscow ABM, decided to copy the NIKE-X to defend the Moscow nomenklatura from MIRVs, and were about to approve engineering development of their second generation dual purpose national SAM/ABM, the SA-10 and LPAR battle management radars. The Politburo and the General Staff realized that the proposed "arms control" talks were a Marxsend. By limiting U.S. ABM the Soviets could buy time while trying to regain the technical lead by developing directed energy systems under a national program adopted in 1965.

By February 1968, after McNamara told the world that the SA-5--per CIA's assessment--really was only a SAM, the Politburo was convinced that the American goose really was pleading to be plucked. So when SALT negotiations began after a brief mourning period for the demise of Czech "socialism with a human face" under the treads of Soviet tanks, the U.S. was surprised to find that the ABM Treaty was the Politburo's first priority.

Meanwhile in the U.S., widespread unrest over the Vietnam War that McNamara now says he didn't really support all along, combined with the prospect of U.S. national ABM, galvanized MAD advocates and anti-nuclear activists into a campaign that soon killed U.S. ABM entirely while the Soviets cultivated our self deception and tried to catch up and leapfrog us technologically.

However, because all the RV and guidance system technologies had been developed earlier under the ABRES program, the U.S. was able to begin fielding MIRV payloads some five years ahead of the Soviets even though the Politburo had funded Soviet MIRVs two or three years before Congress funded the U.S. systems.

Ironically, the Soviet force forecast that McNamara rejected in 1966 proved to be conservative, without the stimulation of U.S. national ABM. Flight testing of MIRVed Soviet ICBMs began in 1972-73 followed by deployment in 1975-76. All three of these new ICBMs, not just the SS-18, were designed for damage limiting, counterforce strikes, and by 1980 constituted some 90 percent of the total Soviet ICBM arsenal. Too support its nuclear war fighting, damage limiting strategy the Politburo funded a larger and more formidable strategic nuclear arsenal than McNamara thought he would provoke by approving U.S. ABM defenses.

The counterforce arsenal that the Soviets actually deployed in 1975-80 was only 10-20 percent larger than my 1966 forecast. The "window of vulnerability" of U.S. land based strategic missiles opened on schedule, and became one of the major issues in U.S. strategic debates in the late 1970s and early 1980s. Furthermore, the total ICBM/SLBM warhead arsenal the Soviets negotiated and deployed under SALT was not significantly different than the 1966 forecast against which even McNamara admitted NIKE-X would be cost-effective.

Most importantly, SALT legalized Soviet acquisition of the strategic offensive missile arsenal required to achieve the damage objectives of their nuclear war fighting strategy. These forces represented the Soviet definition of sufficiency, so the entire SALT process did not limit the planned Soviet buildup. All the SALT agreements were so designed to accommodate Soviet strategic ballistic missile force objectives, and so full of loopholes, that extensive violations were not necessary. The U.S. failed to enforce those that did occur.

The ABM Treaty was quite a different matter; it had to be violated from the beginning. The infamous Krasnoyarsk radar was the sixth in the LPAR series, constructed in that location by a Politburo decision in deliberate violation of the ABM Treaty. However, the really serious Soviet violation was nationwide deployment of the dual purpose SA-5/10s and the battle management radars in violation of article 1 of the ABM Treaty.

When CIA concluded in 1967 that the SA-5 was just an anti-aircraft (SAM) system, and that the Hen House radars were just for early warning (and space tracking), a majority of the U.S. intelligence community joined the CIA choir. Subsequently CIA's analysis of the SA-5 and the Hen House radars was extended to the SA-10 and the LPARs. Once enshrined, CIA's erroneous analysis was not challenged even when "hard" evidence to the contrary appeared. [31]

By the time the Empire collapsed, more than 10,000 dual purpose SAM/ABM interceptor missiles were deployed at SA-5/10 complexes. Yet the U.S. officially counts only the 100 interceptors of the "ABM X-3" system at Moscow, which are permitted by the ABM Treaty. ABM X-3 is a scaled up model of the NIKE-X system, vintage late

1960s, that it took the Russians 20 years to copy.

Even those who now are pushing hard to "defend America" from ballistic missile attacks want to reconcile it with the ABM Treaty, and are not willing to admit that the entire strategic "arms control" process was a farce, a middle class welfare program at best. [32]

According to CIA estimates, when SALT began the Soviet military burden was down to 6-7 percent of GNP, and the Politburo was looking to the negotiations to reduce it further. "Arms control" advocates shared this view.

In fact, between the initial SALT talks in 1969 and Reykjavik in 1987, the military burden on the Soviet economy roughly doubled from 15-16 to about 30 percent (or more) of Soviet GNP. By that time another 15 percent of GNP was being wasted on collectivized agriculture, so at least 45 percent of Soviet GNP was being flushed down the drain for no economic return.

After failing to persuade President Reagan to give up SDI at Reykjavik in late 1986, the synergistic effect of the military and agricultural burdens forced Gorbachev to make concession after concession in all "arms control" negotiations. Years of Soviet intransigence and stalling evaporated as the INF, CFE, and START Treaties soon followed.

The Russians now have openly admitted the obvious, to all but those hooked on the "arms control" process: until Reykjavik the Ministry of Defense controlled the FSU negotiating agenda for the purpose of "preserving and strengthening Soviet military might, which, in this case, included weakening the potential chief enemy--the United States--by negotiations"; and the ABM Treaty "was more a product of insufficient technological development in the Soviet Union" vis-a-vis the U.S. than a "product of strategic analysis". [33]

Fortunately for the West, by 1989 the FSU economy was collapsing from the combined cost of the FSU's nuclear war fighting doctrine and the failure of collectivized agriculture, exacerbated by ill advised economic "reforms", before Gorbachev's diplomatic campaign and "arms control" concessions could snatch victory from the jaws of defeat. The political collapse of the Evil Empire followed in 1991 and the Cold was over, at least for a while.

Unfortunately for the West, this causal nexus is not only virtually unknown but also is almost universally denied, not least of all by the CIA.

The most important national security task facing this country today is to protect both U.S. citizens and our military forces from hostile missiles (and aircraft). In addition to Russia's arsenal of thousands of weapons, China already has a few ICBMs and the

capability to deploy many more. A number of other countries are likely to acquire at least a few long range missiles and aircraft in the next decade.

Poll after poll shows that most American citizens believe that we have some defenses against nuclear missile (and air) attack. While regrettable, such public ignorance is understandable. Over the past three decades, under both Democrats and Republicans, the U.S. has spent many trillions of dollars on defense against most all kinds of threats on a global scale. How could the Government have refused to defend the country against the most humongous military threat the nation has ever faced?

While a majority in the 104th Congress wants to defend the country against ballistic missiles, Mr. Clinton does not because he considers a Treaty that never was a valid contract with a state that no longer exists to be the "cornerstone" of national security policy. In addition to exacerbating past errors, the amendments to the ABM Treaty that the administration is negotiating not only will prevent the U.S. from acquiring the best ballistic missile defense our technology can provide to protect U.S. forces and our Allies abroad, but also will give both Russia and several other successor states to the Empire veto power over where and how we would employ any theatre (tactical) ABM that we may acquire.

As William R. Graham, former science advisor to President Reagan, has put it, the question really is not whether we deploy national ABM, but whether we do so before or after the first nuclear armed missile lands on American territory. For this thank Mr. McNamara, his system analysts, and all the high priests and acolytes of MAD.

In retrospect, the U.S. made three fundamental strategic errors in the Lyndon Johnson administration: adopting a strategy guaranteed to lose in Vietnam; rejecting national ABM for strategic "arms control" agreements that have failed totally; and attempting to finance the "Great Society" and the Vietnam war at the same time, thus setting the stage for more than two decades of deficit financing. Present generations already have paid a pretty price for these policies; future generations will pay more.

1. NIE 11-3-67, "Soviet Strategic Air and Missile Defenses", pp. 1, 17.

2. Documentation for this assessment is p. in my forthcoming book, "The ABM Treaty Charade: A St. Elite Illusion and Delusion". A summary of the draft o. a book appeared under this title in Comparative Strategy, Vol. . no. 3, July-September 1996, pp. 251-60.

3. The colleague was Frank Leonard who had transferred from CIA to NSA.

4. SNIE 11-14-67, "The Soviet Strategic Military Posture", 1961-67", p. 6 reports the nuclear warhead weight and yield.

5. See NIE 11-8-62, "Soviet Capabilities for Long Range Attack" and NIE 11-8-63, "Soviet Capabilities for Strategic Attack".

6. NIE 11-9-63, "Soviet Capabilities and Intentions to Orbit Nuclear Weapons", p. 17.

7. NIE 11-8-64, "Soviet Capabilities for Strategic Attack", p. 2.

For an extensive critique of NIE mirror imaging and other errors during this period, see the "Team B" report, "Intelligence Community Experiment in Competitive Analysis", December 1976, particularly pp. 9-16.

8. In addition to the materials from the SECRET and TOP SECRET editions of the General Staff journal Military Thought provided by Col. Penkovsky (now de-classified), most essential aspects of Soviet nuclear targeting strategy were published openly, most notably in the book Military Strategy edited by Marshal (SU) V.D. Sokolovsky.

9. William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II, (Hoover Institute Press, Stanford CA, 1986), p. 63. For an extensive discussion of Soviet nuclear targeting strategy and analysis of the evolution Soviet capabilities to meet that strategy's damage limiting requirements, see chapter 8 of that study.

10. The evidence for this strategy was in open Soviet literature and in the SECRET and TOP SECRET documents provided by Col. Penkovsky, but had been ignored by the NIEs. Much of this material now has been declassified so it now can be said that Military Strategy (three editions) edited by Marshal (SU) V.D. Sokolovsky was an unclassified synthesis of the highly classified documentary material provided by Penkovsky.

11. I was present at this briefing because of my role in developing these three arguments.

12. McNamara's FY 1968-72 Defense program, p. 53, accepted the 4:1 cost exchange ratio--see Lee, "Arms Control Perceptions and Realities", Comparative Strategy, Vol. 12, no. 4, October-december 1993, pp. 415-436.

13. After the briefing to McNamara, R.B. Foster spent several weeks closeted in the Pentagon preparing the Chiefs' briefing. I supported that effort but did not see the final version nor, to the best of my knowledge, did Foster.

Some limited material on these events at the ranch in early December 1966 have been declassified at the Lyndon B. Johnson Library and are referenced by Patrick Glynn, Closing Pandora's Box, (Basic Books, 1992), p. 226 and footnote 43. That reference stimulated my acquisition of the documentary material discussed herein.

14. "Notes on Meeting with the President in Austin, Texas, December 6, 1966 with Secretary McNamara and the Joint Chiefs of Staff", dated 10 December 1966 (originally TOP SECRET, EYES ONLY FOR THE PRESIDENT). Present were President Johnson, Secretary McNamara, Deputy Secretary Vance, General Wheeler (Chairman, JCS), Admiral McDonald, Generals Johnson (USA), McConnell (USN), Greene (USMC), and W. W. Rostow.

15. Summarized from Rostow's memo; the quote is on p. 4.

16. ibid. These and most of the arguments in the next paragraph had been presented to McNamara at the briefing two or three months earlier.

17. ibid.

18. I presented most of the intelligence, technology, cost, and leadtime analysis refuting the "greater than the greater than expected threat".

19. Smith, Doubletalk, p. 19; Freedman, U.S. Intelligence, p. 94.

20. Anatoly Dobrynin, In Confidence, (Time Books, Random House, N.Y., 1995), p. 149.

21. ibid.

22. ibid., p. 148.

23. ibid., pp. 149-50.

24. ibid., pp. 151-52.

25. ibid., p. 162.

26. ibid., p. 165.

27. ibid.

28. ibid., pp. 165-66.

29. ibid.

30. Freedman, U.S. Intelligence, p. 93, footnote no. 36, citing McNamara's FY 1969 Posture Statement, p. 62, dated January 1968.

31. I have a Freedom of Information action pending to release one body of the evidence on the Soviet dual purpose SAM/ABM programs.

32. For an extensive analysis supporting this judgement, see Lee, "US-USSR Strategic Arms Control Agreements: Expectations and Reality", Comparative Strategy, Vol. 12, no. 4, October-December 1993.

33. A.G. Savel'yev and N.N. Detinov, The Big Five: Arms Control Decision Making in the Soviet Union, (Praeger, 1995), pp. 17, 21.

Mr. WELDON. Mr. Gaffney.

STATEMENT OF FRANK J. GAFFNEY, JR., DIRECTOR, CENTER FOR SECURITY POLICY

Mr. GAFFNEY. Mr. Chairman, thank you very much for both including me and my colleagues in what I guess will be your last hearing on this subject for sure and I imagine on any subject for this session. I am particularly indebted to you, sir, for the leadership that you have shown on this issue since you became chairman of the committee, and I think the country is as well, and that leadership stands in the sharper light, I think, after we have listened for hours and hours and hours to what I regard as mostly dissembling about the administration's real purposes and program with respect to both theater and national missile defenses.

I am only sorry that Congressman Spratt is not here. I regard him as Congress' singlemost effective opponent of the prompt deployment of missile defenses, and as one listens to the bit of sophistry that I think he engaged in in drawing out of witnesses' answers that seemed further to shore up the argument that really everybody is in agreement that we need to deploy missile defenses; everybody is in agreement that we are moving forward swiftly and effectively; everyone fundamentally agrees that we must not wait, that is simply not true. And I think it does a disservice to the debate frankly, to have it suggested that the differences between the proponents and opponents on these issues are relatively minor and the consensus between them is very great.

Let me just suggest to you three fundamental differences. One is that majorities in both houses of Congress, as you know, and in no small measure thanks to your leadership, have expressed the view that we need to make a commitment now to deploy effective missile defenses, that we need to move out now on beginning to deploy such defenses, and that we cannot wait until somebody's definition of a threat emerges to the point where the threat driving justification for missile defense justifies a deployment decision. The Clinton administration and its proponents here in the Congress, most especially Congressman Spratt, have simply taken a different position on each of those points, and I suggest to you, with all due respect to Congressman Spratt, that that disagreement translates into the open-ended vulnerability of the American people and to most, if not all, of their forces and allies overseas as a result.

I have also done a prepared testimony that I would appreciate having available to your colleagues if you would, Mr. Chairman. In it, it makes reference to two things that I would like to ask also be submitted if they may be included in the record. One is terribly important——

Mr. WELDON. Without objection, your complete statement will be in the record.

Mr. GAFFNEY. Thank you, sir. One is a terribly important op-ed article that appeared in this week's Washington Times by J. Michael Waller. I think Congressman Weldon referred to it in his opening remarks. It makes the point that the President of the United States has actively, purposefully, deliberately, and knowingly dissembled with the American people, and I think dissembled is the most charitable term I can think of, about whether they face

today a threat of missile attack. He has done so by on one estimate, 84 different occasions saying that either there are no Russian missiles pointed at our children, our country, our people, our cities, or more outrageous still, that there are no missiles of any kind, not one, not one, not a single one, he said.

Mr. Chairman, as you know, those statements are at best unknowable. At worst, they are simply falsehoods. And I think this article by Mike Waller, which lays out the contrasting information that is available in the public domain is very worthy of your colleagues reading.

[The information referred to was submitted for the record:]

The missiles pointed at America

By J. Michael Waller

"The democracies are in a greater danger than they have been at any time since Stanley Baldwin lied to the English people about the Luftwaffe and Hitler's Germany." House Speaker Newt Gingrich's warning last week in a speech before the Center for Security Policy was a rare public comment on the gravity of post-Cold War threats that the Clinton administration is covering up.

The timid spirit of the British prime minister who preceded Neville Chamberlain now occupies the Oval Office. As he has fought to undermine even the most basic defenses against foreign nuclear missiles, President Clinton has told the American public scores of times that the Cold War nuclear threat is gone. As proof, he cited a 1994 agreement with Russian President Boris Yeltsin in which each side would "detarget" their strategic missiles away from one another's country, and re-target them harmlessly over the Pacific Ocean.

To Russia's hard-line military leaders, the agreement is militarily meaningless. On Jan. 22, 1995, CBS broadcast a "60 Minutes" program from the war room of Colonel-General Igor Sergeyev, commander in chief of the Strategic Rocket Forces. Gen. Sergeyev told host Ed Bradley that his missiles can be "retargeted and launched from this war room . . . most in a matter of minutes."

Two days later, in his annual speech to the nation, Mr. Clinton claimed, "This is the first State of the Union address ever delivered since the beginning of the Cold War when not a single Russian missile is pointed at the children of America."

The very next day, on Jan. 25, President Yeltsin received a chilling message: Russia's early warning system detected a possible surprise attack from the United States. For the first time, he activated his nuclear "black box" to place his strategic forces on alert — a move toward re-targeting the warheads to American soil. "I immediately contacted the defense minister and the generals," Mr. Yeltsin told Interfax, "and we kept track of that missile from beginning to end."

The "surprise attack" was a Norwegian meteorological rocket. Oslo had informed the Russian foreign ministry in advance, but the notice never reached the defense ministry. John B. Stewart, former Director of the Office of Foreign Intelligence at the Department of Energy, later cited an authority who described Moscow's miscalculation as "coming closer to a Russian nuclear launch than at any previous time during the Cold War, including during the Cuban missile crisis."

Mr. Clinton said nothing, and nobody challenged him. Five weeks later, he assured the public in an address at the Nixon Center for Peace and Freedom that Moscow's missile arsenal not only posed no threat, but was actually disappearing. "Both our countries are dismantling the weapons as fast as we can," Mr. Clinton said. "And thanks to a far-reaching verification system, including on-site inspections which began in Russia and the United States today, each of us knows exactly what the other is doing."

Yet he told the public nothing about Russia's ongoing retrofitting of its massive Typhoon submarines so they could house the new SS-N-24/26 strategic nuclear missile. He gave no hint of the secret Sukhoi-T60S strategic bomber and air-launched cruise missiles under development. And he was silent about the new Topol-M intercontinental ballistic missile (ICBM) the military was then preparing for its first test launch.

Mr. Clinton pretended that these modernization programs didn't exist. He repeatedly certified to Congress that Russia was doing nothing beyond its "legitimate" defense needs — even as he doled out hundreds of millions of dollars to help dismantle obsolete parts of the former Soviet nuclear arsenal that the Russians were doing away with anyway.

Addressing the Air Force Academy graduating class of 1995, Mr. Clinton claimed, "We are dramatically reducing the nuclear threat. For the first time since the dawn of the nuclear age, there are no Russian missiles pointed at the people of the United States."

Two days before, Russian television broadcast the unveiling of the new MAZ-79-221, an eight-axle mobile launcher for the Topol-M ICBM, designed to be capable of launching a first strike against the United States. The day after Mr. Clinton's Air Force speech, the Russian newspaper Rossiyskaya Gazeta published Atomic Energy Minister Viktor Mikhailov's revelation that his shop was producing a next-generation nuclear warhead. On Sept. 5, the Military Space Forces announced the first successful test-launch of the Topol-M from Plesetsk.

The Topol-M would replace the old SS-18, slated to be dismantled with resources from the American taxpayer. Said the Military Space Forces spokesman, "Russia hopes to replace all its outdated missiles in the coming years."

Then, on Oct. 4, the Strategic Rocket Forces began a massive nuclear exercise that included more test-launches of missiles designed to destroy the United states. In the middle of this week-long operation, Mr. Clinton addressed a Freedom House conference (co-sponsored by the American Foreign Policy Council), declaring for the 55th time, "Russian nuclear missiles are no longer pointed at our citizens and there are no longer American missiles pointed at their citizens." Russia's doomsday drill continued for another four days without comment from the White House.

President Clinton has implied that not even the People's Republic of China has missiles targeted at the United States, even though Beijing spurned his offer of a de-targeting agreement. In at least 23 of his statements surveyed, he contradicted his own military chiefs on this score. Visiting Des Moines, Iowa, last October, he proclaimed to a cheering crowd, "there is not a single, solitary nuclear missile pointed at an American child tonight. Not one. Not one. Not a single one."

That's not what the Chinese Communists think. Early last January, after returning to Washington from talks in Beijing with senior Chinese leaders, former U.S. Assistant Secretary of Defense Chas. W. Freeman briefed National Security Adviser Anthony Lake about an ominous development. According to the New York Times, Mr. Freeman informed Mr. Lake that a Chinese official told him that Beijing could attack Taiwan without fear of U.S. intervention because American leaders "care more about Los Angeles than they do about Taiwan." According to the report, Mr. Freeman described the statement "as an indirect threat by China to use nuclear weapons against the United States."

A week after the report appeared, Mr. Clinton visited students, parents and teachers in Concord, New Hampshire. Yet he was as unequivocal as ever, assuring the audience, "there is not a single nuclear missile pointed at an American city, an American family, an American child. That is not being done any more."

He repeated the line again in Washington, in Iowa City and again in Des Moines, in New York City and twice again in New Hampshire, in New Orleans and Coral Gables. Few Americans seemed to challenge him.

But the former Soviet officer now in charge of Russia's strategic missile-firing submarines did. Rear Adm. Viktor Vasilyevich Patrushev, chief of the Operations Directorate of the Russian Navy General Staff, said in the May 15 issue of Ogonek magazine, "Yes, the presideats of the United States and Russia have signed the document according to which our missiles are not targeted at each other's countries any more." But it was just a public relations gimmick: "I know that the missiles can be retargeted in an hour even without returning [our submarines] to their bases."

Yet the feel-good defense strategy of Bill Clinton and his Senate allies wouldn't let Adm. Patrushev's facts get in their way. Two weeks after the article appeared, Senate Democrats filibustered to kill a final Senate initiative of presidential candidate Bob Dole instructing the Pentagon to deploy a system to defend the American people from foreign missile attack. The filibusters succeeded.

Two days later, Moscow announced it had conducted its 26th ICBM test since 1991, and that all six dummy warheads had hit their targets. Then, on June 28 in the Sea of Okhotsk just north of Japan, came the largest and most expensive submarine-launched ballistic missile test in Russian naval history. Three Delta-class subs fired multiple missiles Westward across the Eurasian landmass and into the Barents Sea northeast of Norway. It was no simple readiness drill or simulation against China; had the missiles flown eastward, they would have struck the American heartland.

But Mr. Clinton continued as if nothing had happened — in speeches to a Democratic Party gala in San Francisco, at the Armand Hammer Museum of Art in Santa Monica and in his Chicago speech accepting his party's nomination for re-election as president of the United States — for a total of at least 84 claims that Americans were safe from missile attack.

This week, the Senate is scheduled to hold two hearings on defense against ballistic missiles. Perhaps they will shed further light on the dangers of which Mr. Gingrich warned — and the comparison between Bill Clinton and the pathetic Stanley Baldwin.

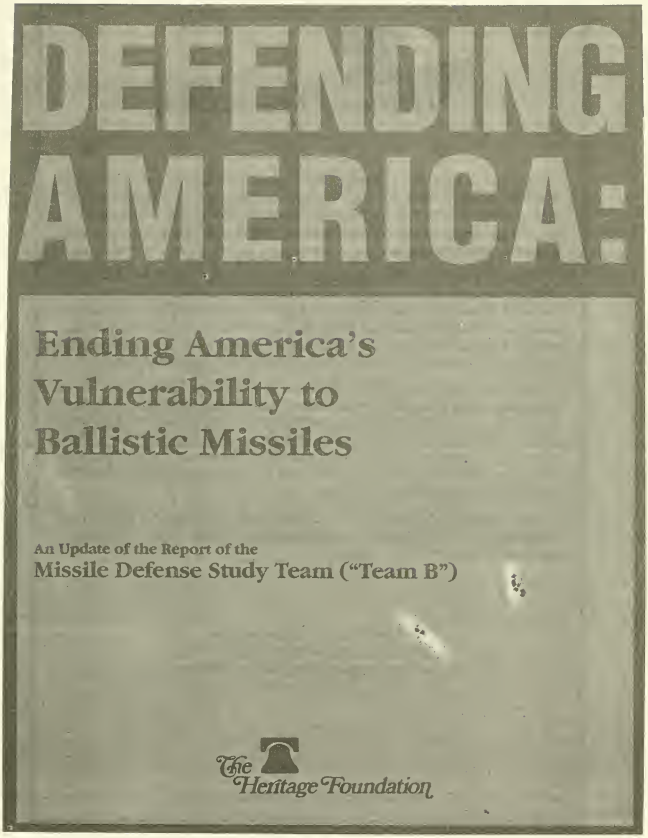
J. Michael Waller is vice president of the American Foreign Policy Council and author of "Secret Empire: The KGB In Russia Today" (Westview Press, 1994).

The Washington Times TUESDAY, SEPTEMBER 24, 1996

Mr. GAFFNEY. The second point is that I would ask to have included in the record a document that was produced under the sponsorship of the Heritage Foundation earlier this year. It was a reprise and update, if you will, of a document that I mentioned when I was here at the beginning of your deliberations this year, a missile defense study effort that concluded in contrast to much of what we have heard here today——

Mr. WELDON. Without objection that will be included.

[The information referred to was submitted for the record:]


DEFENDING
AMERICA:
Ending America's
Vulnerability to
Ballistic Missiles
An Update of the Report of the
Missile Defense Study Team ("Team B")
The Heritage Foundation

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Defending America: Ending America's Vulnerability to Ballistic Missiles

An Update of the Report of the Missile Defense Study Team ("Team B")

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PREFACE

In 1995, The Heritage Foundation convened a missile defense study team to examine the growing threat of ballistic missiles armed with weapons of mass destruction—nuclear, biological, and chemical weapons. The Missile Defense Study Team, known as "Team B," released its report, *Defending America: A Near- and Long-Term Plan to Deploy Missile Defenses*, in June 1995. This report, written by the nation's leading experts on ballistic missile defense, demonstrated unequivocally that a response to the growing missile threat is:

- ✓ **Affordable,** costing less than one percent of the annual defense budget over the next five years;
- ✓ **Effective,** providing a limited global missile defense of the U.S. homeland and a robust defense of U.S. forces and allies against regional missile threats;
- ✓ **Technically sound,** relying upon the extraordinary progress in missile defense technology over the past 12 years as well as upon existing systems; and
- ✓ **Timely,** capable of providing effective defenses beginning in 2001.

The original June 1995 Team B report stated: "The threat of ballistic missile attack is clear, present, and growing." Subsequent events have only reinforced this conclusion and validated Team B's recommendations that the United States deploy a missile defense at the earliest possible date. The intervening year has produced these alarming developments:

- ✗ **Continued efforts** by rogue states like Iran, Iraq, and North Korea to obtain longer-range ballistic missiles;
- ✗ **A resurgence** by communist forces in Russia's parliamentary elections and the strong showing of communist and hard-line nationalist candidates in the presidential election campaign, presaging the possible return to power of a hostile regime—one still armed with a massive nuclear arsenal;
- ✗ **A veiled threat** by the People's Republic of China to attack Los Angeles with nuclear weapons if the U.S. intervenes in the dispute between China and Taiwan;
- ✗ **Ongoing attempts** by the Clinton Administration to expand the 1972 Anti-Ballistic Missile (ABM) Treaty to limit defenses against short-range (non-ABM systems) as well as long-range missiles (ABMs), and to include former states of the Soviet Union in the treaty regime—all without obtaining the constitutional advice and consent of the U.S. Senate to these substantive treaty changes; and
- ✗ **President Clinton's December 28, 1995, veto** of the FY 1995 defense authorization bill because the bill mandated the deployment of a national missile defense system.

However, balanced against these negative developments is a highly positive one. On March 21, 1996, Senate Majority Leader Bob Dole (R-KS) and House Speaker Newt Gingrich (R-GA) introduced the Defend America Act of 1996. This act would commit the government to the deployment of a national missile defense system by 2003. For the first time, ballistic missile defense has the active support of the Republican leadership in both houses of Congress.

The emphasis of the Defend America Act is on ballistic missile defense policy. It sets goals but does not provide specific guidance on the design of the missile defense system to be deployed, mandating a highly effective defense of U.S. territory against limited attacks, to be augmented by a layered defense as larger and more sophisticated threats emerge. The system design or "architecture" called for in the bill would consist of the optimum combination of ground-based, sea-based, or space-based interceptors; space-based sensors; and battle management, command, control, and communications.

Opponents argue that these goals are neither desirable nor attainable, that national missile defense is too costly and unnecessary, and that the U.S. should remain undefended rather than violate the ABM Treaty. The original Team B report demonstrated conclusively that these arguments are wrong. Now, with the pending consideration in Congress of the Defend America Act, Team B's recommendations are more timely than ever. In the spring of 1996, The Heritage Foundation requested Ambassador Henry Cooper, former Director of the Strategic Defense Organization, to reconvene the Missile Defense Study Team and update the original report. Even though a critical year has been lost since the 1995 Team B report, this update shows that an effective, affordable, and timely missile defense is still possible.

This new Team B report offers updated recommendations for a layered defense system, starting with sea-based interceptors and then adding space-based systems. This "first from the sea and then from space" approach will serve to meet the goal established by the Defend America Act at a reasonable cost. The costs of implementing the specific recommendations made by Team B would average just over $2 billion per year for the five-year period covering FY 1997 through FY 2001—less than one percent of the annual defense budget over that period.

The Heritage Foundation—and the nation—owe the Missile Defense Study Team a debt of gratitude. The Foundation also notes with sadness the passing on December 31, 1995, of an original Team B member, Lt. General Daniel O. Graham, former Director of the Defense Intelligence Agency, Deputy Director of the Central Intelligence Agency, founder of High Frontier, and credited by many as the father of the nation's missile defense effort.

Congress and the American people have an historic opportunity to end the decades of deliberate vulnerability to ballistic missiles and nuclear weapons that characterized U.S. strategic policy in the Cold War. The Team B report that follows shows that it can be done, how it can be done, and above all, that it must be done. But opportunity is fleeting. Congress and the Administration must act properly and soon to end the growing threat of proliferating missiles and weapons of mass destruction. The penalty for continued complacency and inaction is too horrible to contemplate in today's disordered, unstable, and threatening world.

Thomas Moore
Deputy Director,
Foreign Policy and Defense Studies

INTRODUCTION

In February 1991, an Iraqi Scud missile killed 29 American soldiers in Dharan, Saudi Arabia, the largest single loss of American life in the Persian Gulf War. Yet five years later, the U.S. still has no better defense against theater ballistic missiles than the *Patriot*. To be sure, the *Patriot* did good service in the Gulf War, helping to neutralize the potential impact of Iraq's Scud arsenal. But it was designed originally as an air defense, not an anti-missile system, and its ability to defend a wide area or population center from ballistic missile attack was deliberately limited.

The U.S. still has no defense whatsoever against intercontinental ballistic missiles (ICBMs), contrary to what most Americans believe. If an ICBM were launched at the United States today —by accident or design—there is not a single thing the U.S. military could do to stop the warhead or multiple warheads from reaching their targets and killing hundreds of thousands, possibly millions, of Americans. In 1983, President Reagan began the Strategic Defense Initiative to end this utter vulnerability to the world's most terrible weapons. Yet the nation is no better protected from missile attack in 1996 than it was in 1983.

Team B considered this needless vulnerability in the context of the missile threat to the American people and to their forces, bases, and allies overseas. Team B concluded, unlike the Clinton Administration, that the threat is clear, present, and growing; and that it demands an urgent response.

As the least expensive and most effective solution to this global problem, *Defending America* recommended accelerated deployment of global wide-area defenses—at sea within the next three to four years and in space by early in the next decade. These initiatives would restore key ballistic missile defense programs that the Clinton Administration sharply curtailed or canceled in 1993.

A year after the release of the Team B study, the United States remains undefended despite the best efforts of some Members of the 104th Congress—and will likely remain undefended if the Administration's current policies prevail. Because missile defense remains a vital but unfulfilled national security requirement, The Heritage Foundation asked Team B to reconvene and take a look at what the Clinton Administration and Congress have done—or failed to do—to defend America. Team B has revalidated its basic approach of 1995, but also has concluded that the lack of progress in protecting Americans from ballistic missiles warrants this updated report in conjunction with the reissue of *Defending America*.

Consequently, The Heritage Foundation is reissuing the Team B report along with this update, which reviews events of the past year that affect the missile defense effort, analyzes the negative impact of recent Clinton Administration missile defense program decisions, and discusses in more detail the Clinton Administration's negotiations with Russia on re-interpreting the ABM Treaty and extending the Treaty's limits to key theater defense systems.

In this update, Team B offers a number of new recommendations to adjust to delays and negative developments in the missile defense program in the past year. The main conclusions are summarized as follows:

❶ **Congress, and the U.S. Senate in particular, should seek ways to remove the obstacles to effective missile defenses posed by the ABM Treaty,** including possible withdrawal from the treaty as the U.S. is entitled to do under Article XV.

❷ **Congress should forego development of ground-based systems for national missile defense and accelerate deployment of sea-based, wide-area defenses.** If fully funded and with no artificial performance constraints or limits imposed by the ABM Treaty, this system could counter threats against the U.S. homeland as well as regional threats from theater missiles, beginning by the year 2000.

❸ **Congress should accelerate the deployment of space-based sensors** to enhance the effectiveness of both theater and national missile defense.

❹ **Congress should direct the Air Force to develop follow-on space-based defenses,** both kinetic energy interceptors and space-based lasers, to begin deployment early in the next decade.

❺ **Congress should ensure the Ballistic Missile Defense Office develops an integrated but open architecture for battle management, command, control, and communications** to support missile defense systems.

WHAT TEAM B PROPOSED IN 1995

In 1995, The Heritage Foundation Missile Defense Study Team proposed improvements or renewed emphasis in several missile defense program areas, in particular:

Sea-Based Wide-Area Defense. Because the Navy already has invested almost $50 billion in its AEGIS cruisers and their infrastructure, modifications or modernization of the software, battle management system, and interceptors for the missile defense mission would cost only about $1 billion. The U.S. could then begin deploying defenses on AEGIS-equipped naval vessels by the end of this decade. For an investment of $2-3 billion, 650 defensive interceptors on 22 AEGIS cruisers could be at sea by 2001, achieving a limited global missile defense capability for the U.S. and for American forces and allies overseas. Team B pointed out that these highly mobile platforms could defend Americans in all 50 states from a limited long-range missile strike, as well as defend American troops and allies overseas, provided the full technological capability of the Navy missile defense system was not arbitrarily constrained or artificially compromised.

***Brilliant Eyes* Sensor System.** Team B recommended accelerating the *Brilliant Eyes* space-based sensor to begin deployment by as early as 1999. This system would enhance the capability of all wide-area defense interceptor systems, wherever based.

Space-Based Defenses. Team B recommended reviving space-based defense programs canceled by the Clinton Administration to provide deployment options beginning early in the next decade. This approach would be the most effective long-term defense to protect the American homeland and to counter advanced theater ballistic missiles.

ABM Treaty Limits. Team B also recommended that defenses for America and American troops, bases, and allies overseas be built without arbitrarily restraining systems to comply with the outdated ABM Treaty. Codifying the Mutual Assured Destruction (MAD) strategy of the Cold War, the ABM Treaty no longer makes sense in a multipolar world of proliferating nuclear powers.

THE CLINTON RECORD ON MISSILE DEFENSE

Team B members are dismayed at the extent to which the Administration has undermined the ability of the United States to defend itself against the growing threat posed by the proliferation of weapons of mass destruction and ballistic missiles. It is a widely acknowledged characteristic of President Clinton and officials in his Administration that they say one thing and do another. Nowhere is this disingenuousness more evident than the Administration's position on weapons of mass destruction and their principal delivery systems—ballistic missiles.

The Administration's Declaratory Policy

On November 14, 1994, President Clinton issued Executive Order 12938, declaring in part that the proliferation of weapons of mass destruction and the means of delivering such weapons constitutes "an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States," and that he therefore had decided to "declare a national emergency to deal with that threat." A year later, on November 15, 1995, he issued a notice of the continuation of this "Emergency Regarding Weapons of Mass Destruction." This is a clear and indisputable evaluation of the immediate danger to the U.S. and its interests posed by "the proliferation of nuclear, biological, and chemical weapons and the means of delivering such systems."

Despite this clear and unequivocal statement of U.S. policy, President Clinton vetoed the FY 1996 Defense Authorization Act on December 28, 1995. This legislation contained missile defense provisions intended specifically to meet the threat from the proliferation of weapons of mass destruction and ballistic missile delivery systems. President Clinton based his veto primarily on his objection to the missile defense language in the Act, which called for defending all 50 American states by early in the next decade. According to the President, this would be a "costly defense system" against a threat that the "intelligence community does not foresee in the coming decade." His veto message asserted that the missile defense provisions would "also jeopardize our efforts to agree on an ABM/TMD demarcation with the Russian Federation."

Defense Secretary William Perry said on September 20, 1994, when announcing the results of the Clinton Administration's nuclear posture review, that his "number one priority is to put MAD (Mutual Assured Destruction) behind us for good, to replace it with Mutual Assured Safety." But on May 10, 1995, President Clinton joined Russian President Boris Yeltsin in declaring the ABM Treaty—which is based on MAD—a "cornerstone of strategic stability." Indeed, the Clinton Administration's theological commitment to the ABM Treaty is so strong that it refuses to exploit U.S. technological advantages to build the most effective defenses—which are also the least costly defenses—to protect the American people and their overseas troops, friends, and allies.

More Administration Inconsistency

Secretary Perry is as inconsistent as his commander in chief. On January 31, 1996, he told the Hoover Institution Board of Overseers that "we are pursuing, in my judgment, robustly, vigorously, a so-called theater missile defense program [which] will give us the capability of defending U.S. forces and U.S. allies against medium-range ballistic missiles. We are moving toward deployment—the production and deployment of this system on a high-priority schedule where the first of the new generation of such defenses will begin their deployment in a few years." In a press conference on February 16, the Secretary announced the results of a six-month Pentagon review of plans to defend the American people and their troops, friends, and allies overseas, stating: "I have no higher obligation as Secretary of Defense than to protect our forces and our territory. This program responds to threats as they develop, combines current and evolving technology to face today's threat and will enable us to develop new technologies to face tomorrow's threat from longer range missiles."[1]

1 See February 16, 1996, press briefing by Defense Secretary William J. Perry and Undersecretary of Defense Paul G. Kaminski, released by the Office of the Assistant Secretary of Defense (Public Affairs); transcript prepared by Federal Document Clearing House, Inc., Washington, D.C.

Nevertheless, the content if not the rhetoric of the February 16 announcement was contrary to the clear intent of Congress, which last year increased the Administration's budget request for missile defense and directed that key programs be accelerated.[2] Instead, the Clinton Administration has decided to slow these programs while cutting 15 percent from its previously planned budget—a budget that already had been cut by about 60 percent below the missile defense plan of the Bush Administration.

Defense experts who were not misled by the responsible-sounding statements in Mr. Perry's February 16 press briefing realize that even the Administration's vaunted commitment to theater missile defense is highly questionable. Secretary Perry announced cuts in funding for both the Theater High Altitude Area Defense (THAAD) and the Navy's AEGIS-based wide-area defense and proposed to delay deployment for both indefinitely—in spite of congressional direction to deploy these two systems by 1999.

Furthermore, the Administration has decided to delay for at least three years a decision to deploy any defense of the American people, a delay that will most likely prove to be indefinite if the Clinton Administration continues in office beyond January 1997. The Administration has canceled or sharply curtailed development of the most effective, least expensive defenses. It is even stretching out development of the programs it is supporting, thereby increasing total system costs. It has reoriented the theater defense programs to the least capable systems, providing only limited protection to overseas troops, friends, and allies and denying the American people the inherent capability that would be afforded by fully exploiting modern technology.[3] Similarly, deployment of *Brilliant Eyes* space sensors was delayed at least six months while the Administration reviewed how to proceed. In short, the net effect of the Clinton Administration's policies and statements is to undermine deployment of effective theater and national missile defenses.

These developments, apparent from the headlines of press reports from the briefing given on the Friday afternoon before a long holiday weekend,[4] are at sharp variance with last year's Team B report, which concluded that the threat is clear, present, and growing. The factual evidence presented in *Defending America* demonstrated in particular that worldwide defenses against longer range missiles are urgently needed to counter blackmail threats that could limit U.S. involvement in future regional crises involving U.S. national interests. This kind of blackmail was illustrated recently when a Chinese official threatened to destroy Los Angeles if the U.S. interfered with China's feud with Taiwan.[5] And on March 8, 1996, China conducted missile firing tests offshore near Taiwan's two largest cities as part of an ongoing campaign to intimidate Taiwan. These missile "tests" amounted to a *de facto* blockade, and further dramatized the use of ballistic missiles as weapons of coercive diplomacy as well as weapons of war.[6]

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2 On March 7, 1996, Senate Majority Leader Bob Dole and 26 of his colleagues—including the entire Republican leadership and the Chairmen of the Senate Armed Services and Foreign Relations Committees and the Defense Appropriations Subcommittee—served notice on Secretary of Defense Perry that the Clinton Administration had embarked on a "course of action indefensible before the law and the American people" in curtailing key missile defense programs.

3 See "Hike in U.S. Navy TMD Funds Misses Service Target," *Defense News*, February 19-25, 1996, p. 10.

4 See, for example, Bradley Graham, "Pentagon to Focus on Defense Against Short-Range Missiles," *The Washington Post*, February 17, 1996, p. A4; Bill Gertz, "Pentagon Delays Missile Defenses Congress Wants," *The Washington Times*, February 17, 1996, p. A2; and Bradley Graham, "Pentagon Plan to Delay Antimissile Programs Draws Heated Opposition on the Hill," *The Washington Post*, March 7, 1996, p. A12.

5 See Patrick E. Tyler, "As China Threatens Taiwan, It Makes Sure U.S. Listens," *The New York Times*, January 24, 1996, p. A3. See also Patrick E. Tyler, "China Hints at a Timetable to Take Control of Taiwan," *The New York Times*, January 31, 1996, p. A2.

6 In spite of this clear demonstration of the need to defend America now, Defense Secretary Perry continues

The incoherence of the Administration's position on missile defense is further revealed by its handling of theater defenses, which it continues to claim are "first priority." Seeking funds in a shrinking defense budget to offset shortfalls in other procurement accounts, the Administration is slowing its own theater defense program on the grounds that there is no imminent threat.[7] Yet America's top commander in South Korea, General Gary Luck, asked that the THAAD (Theater High Altitude Area Defense) system be expedited to replace the *Patriot* system in light of growing tensions with North Korea. But General John Shalikashvili, Chairman of the Joint Chiefs, justified turning down General Luck and delaying THAAD because, in his view, there is no new threat from North Korean missiles.[8] Also, U.N. inspectors fear that an Iraqi missile program exposed last year is more extensive than previously thought and could enable Saddam Hussein to fire chemical, biological, or nuclear weapons at targets up to 2,000 miles away—which would include all of the capitals of Europe.[9]

The need for wide-area defenses—surpassing the capability of THAAD—could not be clearer. Short-range interceptors like *Patriot* and the Navy Lower Tier emphasized by the Clinton Administration will be ineffective against 2,000-mile-range ballistic missiles. They will have difficulty defeating even the Gulf War Scud, which broke up on reentry and became very hard to hit as its warhead "cork-screwed" its way toward the Earth. Neither of these theater systems currently being pursued by the Clinton Administration will be at all effective against missiles that release their warheads shortly after their boost phase, while they are rising in rocket-powered flight from their launchers. Yet there are reports that such missiles might be developed and "on the world market within the next five years."[10] Thus, the missile threat demonstrably continues to grow and the Clinton Administration continues to resist committing the needed resources to protect the American people, their forward-deployed forces, and their allies.

Clearly, the Clinton Administration's relaxed view of the threat and its inconsistent actions on missile defense are neither prudent nor responsible. It has become regrettably clear that the Clinton Administration cannot be relied upon to carry out its own stated policy. The President has created a political environment in which words mean nothing, in which the Administration's policy declarations merely conceal the failure to protect Americans against ballistic missiles. The Administration's actions over the past year demonstrate that the American people cannot depend upon the executive branch to fulfill its chief constitutional duty—to provide for the common defense—even though the missile threat continues to grow.

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to minimize the current threat. See, for example, Bill Gertz, "Perry: Missile Defense Unnecessary," *The Washington Times*, April 26, 1996, p. A6.

7 Daniel G. DuPont and Elaine M. Grossman, "Missile Defense Review Moves DOD to Overhaul BMDO Programs, Priorities," *Inside the Pentagon*, February 8, 1996, p. 1.

8 Bill Gertz, "Shalikashvili Explains Decision to Defer THAAD Deployment," *The Washington Times*, February 16, 1996, p. A8. Notably, General Shalikashvili was defending the decision not to honor the request of the commander of U.S. forces in Korea to reverse the JCS decision to stretch out the development of THAAD. See Bill Gertz, "Plea of Missile Defense in Korea Fails," *The Washington Times*, February 15, 1996, p. A1.

9 Stewart Stogel, "Missile Plans by Iraq May Aim at Europe," *The Washington Times*, February 16, 1996, p. A1.

10 See, for example, David M. North, "Washington Outlook—Danger Ahead," *Aviation Week and Space Technology*, July 24, 1995, p. 19.

ADDITIONAL DEVELOPMENTS SINCE THE 1995 TEAM B REPORT

The President's Veto of the Defense Authorization Bill

In crafting the missile defense provisions of the FY 1996 defense authorization bill, the congressional defense committees focused on limited, ABM Treaty-compliant, ground-based systems for the homeland defense mission. Team B recognizes that staunch supporters of missile defense in Congress chose to focus on ground-based defenses in order to garner the majority needed to pass the defense authorization bill. It was a tactical judgment call designed to "move the ball forward" toward actual deployment of National Missile Defense (NMD), even if only a few yards, and the bill as passed did direct the Clinton Administration to deploy, early in the next decade, a defense for the American homeland.[11]

But on December 28, 1995, President Clinton vetoed the bill precisely because it mandated defending the American people by early in the next decade. The majority that had coalesced around a less than optimum NMD program was not sufficient to override the President's veto, and Congress was forced to strip out the offending section so that the defense authorization bill could be signed into law.

While this was a severe setback for the defense of the United States, at least it clarified the missile defense debate. It is now clear that the Clinton Administration and the majority of the Democrats in Congress, who would not vote to override the veto, are willing to risk leaving the American people vulnerable to attack by even a single ballistic missile.

However, Congress has an opportunity to correct this failure of presidential leadership through the Defend America Act of 1996, announced on March 21, 1996, by Senate Majority Leader Bob Dole, House Speaker Newt Gingrich, and virtually the entire Republican leadership of both houses. This act strengthens the language in the vetoed 1996 Defense Authorizatoin Act and calls for a layered defense, including ground, sea, air, and space-based components, with the specific architecture to be determined by March 15, 1997.

"Explaining Away" the Need for Missile Defense

The Clinton Administration argues that there is no ballistic missile threat to the American homeland and that there will be sufficient warning to build needed defenses before such a threat develops. In line with these assumptions, the Administration has structured a National Missile Defense Deployment Readiness Program. Over the next three years, it would develop components of an ABM Treaty-compliant ground-based defense which, in turn, could be deployed in another three years if, in the President's view, developments warrant it. It therefore intends to provide no defense for the American people before 2003 at the earliest.

Yet American cities can be destroyed today by Russian and Chinese missiles. One wonders whether the Clinton Administration believes it is "politically incorrect" to call attention to such possibilities. Furthermore, authoritative Administration officials testified to Congress last year that rogue states could threaten U.S. cities with long-range missile attack in three to five

11 It is commonly though incorrectly assumed that the technology is most mature for ground-based defenses because such defenses have been under development longest, and that such defenses are the least expensive. In fact, effective wide-area defenses can be deployed sooner at sea and in space. Contrary to conventional wisdom, advances in technology have been flowing from research on space-based systems to ground-based systems, not the other way around. Finally, as discussed in the 1995 Team B report, sea-based and space-based defenses would be far less expensive and more effective in providing the needed wide-area defensive coverage.

years—or sooner if they chose to accelerate their development plans.[12] Several Senators and Congressmen have expressed concern that the Clinton Administration politicized a recent National Intelligence Estimate so as to suggest a lesser threat to the United States than indicated in this previous testimony.[13] Even Clinton's first CIA Director, R. James Woolsey, testified before the House National Security Committee on March 21, 1996, that this national intelligence estimate contributed to a "badly distorted and minimized perception of the serious threats we face from ballistic missiles now and in the near future."

The ABM Treaty—or an ABM/TMD Treaty?

Last year Team B recommended an honest appraisal of the impediments to effective missile defense, including theater defense, posed by the 1972 ABM Treaty. To its great credit, the congressional leadership has sought throughout the past year to prevent Clinton negotiators from negotiating arbitrary constraints on theater missile defense systems that were never supposed to be limited by the ABM Treaty.[14]

But the Clinton Administration appears committed to "strengthening" this treaty. In talks to determine the demarcation between permitted theater defenses and ABM Treaty-limited strategic defenses, the Administration reportedly has accepted the Russian demand to limit the performance of the most promising theater defenses, including the Navy wide-area system. Only Russian recalcitrance and over-reaching in seeking greater restraints on theater missile defense have prevented consummation of the agreement and converting the ABM Treaty into an ABM-TMD treaty.

In demonstrating such a slavish adherence to a narrow interpretation of the ABM Treaty, the Administration in effect is binding the U.S. unilaterally to perceived rather than real treaty constraints. This theological devotion to the treaty has resulted in deliberate "dumbing down" of theater defense designs rather than making the systems as capable as available technology will permit. For example, the Navy wide-area defense is not being designed to exploit high velocity interceptors or external sensor data to maximize its reach, because that capability also would enable the system to defend the United States.[15] The THAAD system is not being allowed to use any external sensor data to extend its reach and effectiveness.[16]

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12 See Senate Select Committee on Intelligence news release, "Senate Intelligence Committee Releases Unclassified Intelligence Assessments," May 1, 1995.

13 Senator Jon Kyl (R-AZ) discussed his misgivings with the "new" NIE in a January 18, 1996, speech at an AIAA conference in Monterey, California (mimeograph). See also Rowan Scarborough and Bill Gertz, "Missile-Threat Report 'Politicized,' GOP Says," *The Washington Times*, January 30, 1996, p. A1; Bill Gertz, "Probe Urged of Missile Threat Report," *The Washington Times*, February 29, 1996, p. A12; and transcripts from February 28, 1996, House National Security Committee hearings.

14 Over the past year, at least seven letters from the congressional leadership have directed the Clinton Administration to cease its efforts to limit theater and U.S. homeland defenses and to "multilateralize" the ABM Treaty—even to halt the negotiations that seem determined to proceed in this direction despite repeated statements of congressional concern. See, for example, Bill Gertz, "Deal With Russia Could Hamper Missile Defenses," *The Washington Times*, December 4, 1995. In one of the most recent letters, Senate Majority Leader Bob Dole, House Speaker Newt Gingrich, and 12 chairmen of defense and foreign affairs committees and subcommittees wrote President Clinton on February 12, 1996, expressing their strong objections to continuing negotiations with Russia that "will impede our ability to defend America and its interests" and indicating their intent to hold related hearings in the near future.

15 Then Deputy Defense Secretary John Deutch explained to the Navy League on April 13, 1995, that the Clinton Administration's version of the Navy Upper Tier—or wide area—defense was treaty-compliant because it was constrained to use only data from the SPY-1 radar co-located with its interceptors. See Bill Gertz, "Navy Missile Defense Shouldn't Be Issue In Talks," *The Washington Times*, April 14, 1995, p. A3.

Despite the President's promise to "work closely with the Congress," he has largely ignored the concerns of Congress in favor of accommodating Russian demands to limit U.S. missile defenses through a renegotiated ABM Treaty. But Members of Congress are becoming increasingly disturbed at the Administration's position. Late last year, Representative Martin Hoke (R-OH) introduced a bill directing the Administration to exercise its rights to withdraw from the ABM Treaty,[17] though it has not yet been debated. More recently, Foreign Relations Committee Chairman Senator Jesse Helms (R-NC), introduced a similar bill in the Senate.[18]

With these bills pending, the stage is set for hearings and a serious debate in both the Senate and the House on these issues vital to the nation's security. If the Administration expands the ABM Treaty to cover advanced theater systems and also agrees to "multi-lateralize" the treaty by including the states of the former Soviet Union, it will be making substantive changes in the treaty. These changes must come before the Senate for its consent. Otherwise, the Senate's constitutional prerogatives in treaty-making will be undermined, as will national security.

It has become manifestly clear that no effective defense of the American people can be built consistent with ABM Treaty limits. And if the Administration has its way, no highly effective theater defense will be built either. The Administration has shown clearly that it prefers defending the Treaty to defending Americans.

TEAM B RECOMMENDATIONS FOR FISCAL YEAR 1997

Team B believes the congressional leadership, having made clear its fundamental differences with the Administration, should press for deployment of the least expensive, most effective near-term defenses technically achievable. Moreover, Team B concludes that the ABM Treaty must be dealt with in a manner consistent with these primary objectives. Recommendations to meet the latest developments are to:

Review the Clinton Administration's ballistic missile threat assessment and direct a more prudent approach to accelerate the development of appropriate responses;

Review the role of the ABM Treaty in artificially limiting the development of the most effective defenses now technologically feasible and direct that the most effective, affordable near-term defenses be developed unconstrained by the ABM Treaty and then deployed at an accelerated pace;

Use all available congressional powers and prerogatives to move the U.S. toward withdrawal from the ABM Treaty after giving six months' notice, which it has the right to do under Article XV;

Redirect last year's consensus objective of deploying ground-based U.S. homeland defenses by 2003 and focus it instead on beginning deployment of sea-based wide-area defenses by the year 2000, unconstrained by the ABM Treaty;

What he did not reveal was that this constraint, especially in conjunction with the interceptor velocity limits being discussed with the Russians, limits the Navy system's effectiveness as a theater defense system and precludes it from having a capability to defend the U.S.

16 The April 19, 1996, *Aerospace Daily* disclosed that Lt. General Malcolm O'Neill, Director of the Ballistic Missile Defense Organization, told a House appropriations subcommittee that the U.S. Army had been directed not to write the software needed to provide these data or "cueing" from external sources. The news item added that Representative Curt Weldon (R-PA) considered these arms control-based limits (which are also being applied to the Navy Upper Tier System) to be "outrageous" and "unacceptable."

17 Kerry Gildee, "Bill Introduced in House Calls for U.S. to Abandon ABM Treaty," *Defense Daily*, October 18, 1995, p. 77.

18 Bill Gertz, "Helms Wants U.S. Out of ABM Treaty," *The Washington Times*, February 7, 1996, p. A3.

Direct the Air Force to accelerate deployment of *Brilliant Eyes* space-based sensors beginning as early as 1999, to enhance the effectiveness of both theater and U.S. homeland defenses;

Direct the Air Force to develop follow-on space-based defenses—both kinetic-energy interceptors and space-based lasers—for deployment early in the next decade;

Direct the Army to focus its efforts on developing and deploying ground-based theater missile defenses to support overseas U.S. troops and allies; restore the $2 billion recently removed by the Administration from the multi-year THAAD budget; and re-establish 2000 as the initial deployment date;

Direct the Ballistic Missile Defense Office to assure development of an integrated but open architecture for the battle management, command, control, and communications to support these defense systems.

Revised Spending Plan

Congress's failure to override the President's veto of the FY 1996 defense bill demonstrates the futility of pursuing relatively expensive yet less effective ground-based national missile defenses in the hope of getting at least some anti-missile protection deployed. Team B believes Congress instead should direct the accelerated development and deployment of the most effective sea-based and space-based wide-area defenses. Developing a boost-phase intercept capability with these and other systems also should be a high priority. These systems also will defend American forces and allies abroad, reducing the requirements for ground-based theater missile defenses.

Table 1

Recommended Funding for Missile Defense Systems

	FY 96			FY 97		FY 98	FY 99	FY 00	FY 01
Millions of Dollars	Clinton Budget	Congress	Team B	Clinton Budget	Team B	Team B	Team B	Team B	Team B
National Missile Defense	$370	$745	$370	$515	$265	$360	$490	$600	$720
Global Defenses									
Navy Wide-Area	30	200	300	60	360	470	450	450	450
Space-Based Defenses									
Space-Based Interceptors	0	0	150	0	250	300	?	?	?
Space-Based Lasers	30	80	150	30	250	300	?	?	?
Technology	145	145	200	200	200	200	200	200	200
Deploy Brilliant Eyes (AF)	130	250	250	120	300	500	950	1050	1050
Total	705	1,420	1,420	925	1,625	2,130	2,090	2,300	2,420

This approach will require that missile defense funds, including those already appropriated and those currently being applied to the Clinton Administration's so-called 3+3 Deployment Readiness Program, be spent instead on sea- and space-based defense programs. The highest priority should be assigned to deploying the Navy wide-area defense beginning in the year 2000. This would provide the earliest U.S. homeland defense. Evolutionary improvements to increase its effectiveness should occur as the relevant technologies mature. This is needed to maximize the system's ability to protect the U.S. homeland. Second, the development of space-based sensors and space-based defenses, both kinetic-energy interceptors and lasers, should be revived and accelerated.

Table 1 provides recommended funding levels, including additional funds in 1996 which can be accommodated by reprogramming funds already appropriated under the National Missile Defense program element from ground-based defenses to sea- and space-based defenses. (The recommended funding is consistent with last year's Team B report, given that six months of FY 1996 already have been lost.)

As discussed in last year's Team B report, the out-year funding needed for space-based systems will depend on development activities during the next three years. However, Team B continues to believe that the two space-based defense systems are complementary. In fact, for a given effectiveness against advanced threats, it can be shown that the least expensive space-based defense involves both. With the necessary funding, deployment can begin shortly after the year 2000. For planning purposes consistent with this objective, Team B recommends that $1.6 billion, $2.4 billion, and $3 billion, respectively, be budgeted for 1999, 2000, and 2001.

This recommendation to forego continued commitment to a ground-based defense for protection of the U.S. homeland is intended to address the inherent shortcomings of ground-based systems discussed in the 1995 Team B report. In short, they can be overcome by likely countermeasures, they are expensive, and they are difficult to deploy in peacetime—even more so in crisis or war. The Clinton Administration suggests that a very limited "ABM Treaty compliant" single site defense might cost less than $5 billion.[19] Team B regards this as a waste of scarce missile defense dollars. Such a significant expenditure of funds on relively ineffective ground-based defenses will only delay building urgently needed, more effective, and less expensive sea-based and space-based defenses.

Team B recommends that FY 1996 funds for National Missile Defense (NMD) be redirected from the ground-based NMD program now planned toward accelerating more effective and less expensive sea-based and space-based wide area defense programs. Future NMD funds should be directed toward providing evolutionary technical improvements to the initial Navy wide-area defense system in order to give it the most capable performance against the full spectrum of future threats to the United States. The NMD budget line should also include about $150 million per year to continue programs to defeat countermeasures and support critical sensor programs that will enhance the midcourse intercept capability of all defenses.

The recommended funding for the technology line would restore key efforts against likely countermeasures. The most important countermeasure anticipated in the relatively near future is a "clustered submunition" that disperses numerous warheads shortly after a missile's boost phase is completed. This countermeasure would overcome the limited theater missile defenses currently being developed by the Clinton Administration. To defeat it would require a boost-phase defense—that is, destroying the entire missile/warhead package before the submunitions can be released. But all boost-phase defenses that could be deployed in the near term were canceled by the Clinton Administration in 1993. Restoring them therefore should receive high priority. The funding recommended above should be sufficient for a technology demon-

19 The least expensive (perhaps $2-3 billion) and nearest term (perhaps within four years) ground-based defense would involve modifying Minuteman missiles and command and control software to exploit the current Minuteman infrastructure. However, this system would have limited capability against only a few missiles (in his April 27, 1995, testimony before the House Budget Committee, Defense Secretary Perry acknowledged that a defense would be needed against several times this number—i.e. 10-20 warheads; on September 28, 1995, he told the Regional Commerce and Growth Association of St. Louis, Missouri, that a reasonable attack to design against would include "several dozen missiles"). There are likely to be substantial operational constraints (how would the U.S. persuade Russia that Minuteman defensive missiles launched at North Korean missiles were not Minuteman offensive missiles launched at Russia?), and these missiles would be less effective than sea-based wide-area defenses that could be deployed as soon for the same price—and defend American overseas troops, friends, and allies as well.

stration within three years of a high-acceleration boost-phase interceptor like the *Raptor Talon* concept.

The Final Hurdle: The ABM Treaty

Team B again recommends that Congress do all within its power to restrain the Clinton Administration's penchant for negotiating additional treaty limits on U.S. defenses. Instead, the U.S. should indicate clearly to the Russians that the U.S. intends to provide effective wide area defenses for the American people and their overseas troops, friends, and allies—and that it would prefer to do so with Russia's agreement. However, the U.S. should be explicitly clear that unless Russia begins to cooperate immediately, it will exercise its right to withdraw from the ABM Treaty and proceed to build defenses unilaterally.[20]

It should be obvious to any competent U.S. negotiator that the Russians will agree only if they believe that the U.S. is prepared to proceed unilaterally. The best way to move in this direction is to announce that the strategic situation has changed significantly since the ABM Treaty was negotiated in 1972 and that, because the new world disorder presents a number of potential threats to America's supreme interests, the U.S. intends to withdraw from the ABM Treaty. If the treaty no longer serves America's national security interests, the U.S. has every right to withdraw, and this right is made clear in Article XV. Once this step is taken the U.S. should proceed to build the effective defenses recommended above as quickly as possible.

20 During the past year, bills that support this policy have been introduced in the Senate by Senator Jesse Helms (R-NC) and in the House by Representative Martin Hoke (R-OH). Hearings and floor debate could be very useful in firming up a clear U.S. policy regarding the need to move beyond the ABM Treaty and build effective defenses that increase the security of the U.S. and its friends and allies in the post-Cold War world.

Chapter One

THE BALLISTIC MISSILE THREAT

Ballistic missiles represent a major threat to civilian populations and military forces. Prior to a conflict, they are instruments of intimidation, blackmail, and threatened terror, especially if armed with weapons of mass destruction. If they are sufficiently accurate and powerful, missiles can directly threaten military forces and supporting infrastructure. Once used, their psychological impact can greatly damage the morale of an opponent.

This has been the case since German missiles, armed only with conventional high explosives, damaged more than 1.7 million British homes in 1944 and 1945. These German attacks with V-1 cruise missiles and V-2 ballistic missiles caused over 67,000 casualties.[1] Winston Churchill's remarks about the impact of these weapons are still appropriate: "[The missiles] imposed upon the people of London a burden even heavier than the air raids of 1940 and 1941. Suspense and strain were more prolonged. The blind impersonal nature of the missile made the individual on the ground feel helpless."[2] Although less than 20 percent of these missiles were V-2 ballistic missiles, they were particularly terrifying because there was no defense against them.[3]

Beyond being effective terror weapons, these missiles were recognized to have substantial military value. In referring to the German missiles in his 1948 memoir *Crusade in Europe*, the Supreme Allied Commander, General Dwight D. Eisenhower, noted: "It seemed likely that, if the German had succeeded in perfecting and using this new weapon earlier than he did, our invasion of Europe would have proven exceedingly difficult, perhaps impossible."

BALLISTIC MISSILES: STRATEGIC WEAPONS FOR ROGUES

Tactical ballistic missiles, again armed with conventional warheads, were used during the 1991 Gulf War. Iraqi Scud attacks created severe psychological pressures on the Israelis, and the effort to counter the Scud missiles was a major drain on allied planning and operations. Coalition aircraft and special forces combined may have been successful in destroying at most "a handful" of Iraq's mobile Scuds, and there is no definitive evidence of any mobile Scuds destroyed by air power independently.[4] The Gulf War also illustrated for the first time the impor-

1 Robin Ranger, "Theater Missile Defense: Lessons from British Experiences with Air and Missile Defenses," The Centre for Defence and International Security Studies, Lancaster University, 1994, pp. 10-11.

2 Winston Churchill, *Triumph and Tragedy* (Boston: Houghton, 1981).

3 By the end of the war, the British had developed effective air defenses against the V-1 cruise missile. But, until the present time, no effective ballistic missile defenses have been developed. Modern technology makes affordable, effective ballistic missile defenses feasible — the only issue has to do with understanding such defenses are needed and developing the political will to build them. It is also important to maintain effective defenses against modern aircraft and cruise missiles, but, in that case, there are no major political inhibitions to modernizing our air defenses. Cold War ideology associated with the ABM Treaty must be overcome to build defenses against the ballistic missile.

4 From a recent unclassified study sponsored by the Air Force: United States Air Force, *Gulf War Air Power*, Vol.

tant stabilizing effect of even a marginally effective active defense against ballistic missiles, which had enjoyed an unchallenged free ride to their targets since their first use in World War II. The defense provided a basis for keeping Israel out of the war. If Israel had entered the war, Saddam Hussein might well have achieved his aim of breaking apart the U.S.-led coalition organized against him.[5]

By contrast, the existence of longer-range ballistic missiles — particularly ones armed with nuclear weapons — would have made the situation in the Gulf intolerably unpredictable, possibly precluding the use of U.S. military force. As illustrated in Figure 1-1, with long-range ballistic missiles Saddam Hussein could have held cities throughout Europe at risk. It probably would have been impossible to form an allied coalition with Europeans had Saddam possessed the capability to target European cities with ballistic missiles, especially if they had been armed with chemical, biological, or nuclear warheads. The U.S. Congress would have been hard-pressed to sanction the use of force had Iraq possessed ballistic missiles with intercontinental range.

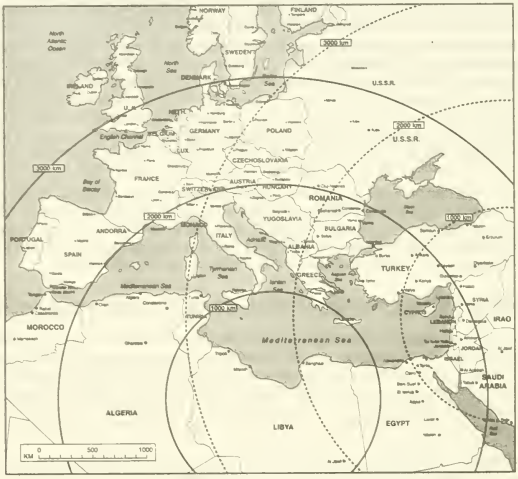

Figure 1-1. Potential Reach of Missiles Based in Libya (Solid Circles) and Iraq (Dashed Circles)

II, Part II (Washington, D.C.: Government Printing Office, 1993), p. 340.

5 *Patriot* was designed and built as an air defense system. It was given a very limited capability to defend itself against ballistic missile attack, but was never intended to defend people. *Patriot*'s real value in the Gulf War was strategic because it provided Israeli leadership an alternative to retaliating and being drawn into the war — which could have split the alliance arrayed against Iraq. Therefore, *Patriot* foiled Saddam Hussein's strategy to split the allied coalition.

These lessons will not be lost on rogue leaders. A former Chief of Staff of the Indian Army expressed his view that "The Gulf War emphasized once again that nuclear weapons are the ultimate coin of power. In the final analysis, they [the Americans] could go in because the United States had nuclear weapons and Iraq didn't."[6]

This potential for coercion is perhaps the ballistic missile's greatest value to a rogue leader. Beyond their coercive value in threatening distant cities and their ability to drain military resources, ballistic missiles, if sufficiently accurate and lethal, can also pose threats to military forces. By targeting such vulnerable transportation sites as ports and airfields, an adversary could block U.S. entry into a conflict zone and cut off logistics to support military operations. Missiles also could be used to attack U.S. troops overseas.

From the perspective of a rogue leader, ballistic missiles (for which there is currently no effective defense) could be the weapon of choice to threaten the rear of U.S. and coalition forces, especially in the face of American air superiority. Acquiring and maintaining missiles is much less expensive than a modern air force. Moreover, missiles with mobile launchers are much less vulnerable than aircraft to U.S. offensive operations. Finally, missiles armed with conventional munitions, if accurate enough, can be as effective as some weapons of mass impact.

Ballistic missiles are primarily strategic weapons. It is misleading to call even the widely proliferated shorter range missiles "tactical." The distinction between "tactical" and "strategic" missiles has been based on range, primarily for the purposes of negotiating arms control agreements. A more useful distinction would be to determine how the weapon is used. Virtually none of the Scud-type missiles fired over the past several years has been "tactical," that is, fired at enemy forces in the field. They all have been "strategic," or fired primarily at population centers. The main motivation of nations acquiring ballistic missiles today is not to use them "tactically" against enemy military forces. Rather, the motivation is to intimidate their neighbors and the rest of the world by threatening strikes against cities.

The mere possession of ballistic missiles and a program to develop nuclear weapons have given North Korea, a backward Stalinist state, substantial political power, leading the United States and its allies to make previously unthinkable concessions. Japanese spokesmen have expressed great alarm that the current North Korean missiles, even if armed only with high explosives, can strike nuclear power plants in Japan and create an enormous catastrophe. Defenses against even these "tactical" or "theater" missiles are therefore actually strategic defenses. Protecting the homelands of allies, friends, and coalition partners is no less — and no more — important than assuring the safety of the American people.

PROLIFERATION

In a March 1995 report, *The Weapons Proliferation Threat*, the Central Intelligence Agency's Nonproliferation Center observed that

> at least 20 countries — nearly half of them in the Middle East and South Asia — already have or may be developing weapons of mass destruction and ballistic missile delivery systems. Five countries — North Korea, Iran, Iraq, Libya and Syria — pose the greatest threat because of the aggressive nature of their weapons of mass destruction programs. All five already have or are developing ballistic missiles that could threaten U.S. interests.[7]

6 Selig S. Harrison and Geoffrey Kemp, "India & America After the Cold War," Carnegie Endowment for International Peace, 1993, p. 20.

Arms control and other diplomatic efforts may slow missile proliferation, but they cannot stop it. The missile proliferation threat, even to the U.S. homeland with long-range missiles, is real and growing. Third World nations are advancing their missile programs through indigenous development, the purchase of missile components, and the purchase of space launch vehicles for reportedly peaceful purposes. While space launch vehicles can be used for peaceful purposes, such as launching communications satellites, they also give would-be proliferants an inherent missile capability (Figure 1-2 illustrates how space launch vehicle components are largely interchangeable with ballistic missile components).

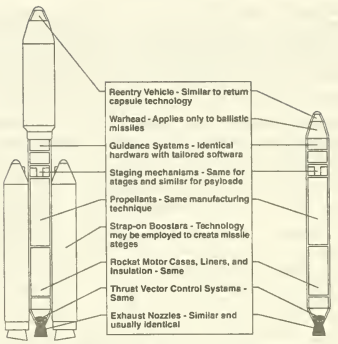
Reentry Vehicle - Similar to return capsule technology
Warhead - Applies only to ballistic missiles
Guidance Systems - Identical hardware with tailored software
Staging mechanisms - Same for stages and similar for payloads
Propellants - Same manufacturing technique
Strap-on Boosters - Technology may be employed to create missile steges
Rocket Motor Cases, Liners, and Insulation - Same
Thrust Vector Control Systems - Same
Exhaust Nozzles - Similar and usually identical

Figure 1-2. Comparison of Space Launch Vehicle and Ballistic Missile Components

While acknowledging the reality of the missile threat to U.S. overseas troops, friends, and allies, the Clinton Administration is overestimating how long it could take for Third World countries to develop nuclear missiles. The Clinton Administration claims that missile attack threats from potentially dangerous Third World nations to the U.S. homeland will not arise for at least ten years.[8] This estimate is based on the assumption that the states acquiring missiles will develop them indigenously. While it is questionable whether it will take ten years for Third World countries to develop missiles on their own, it is clear that proliferants could purchase long-range missiles and nuclear warheads at any time, with little or no advance warning. Further, rogue nations such as Iran and North Korea are acquiring submarines and may even launch shorter-range missiles they now possess from an ordinary merchant ship off U.S. shores.

Indeed, Saudi Arabia purchased the 2,000-mile range CSS-2 missile from China several years ago. Others, such as Iran and Syria, have purchased shorter-range ballistic missiles from North Korea. There is evidence, including from Russian General Victor Samoilov, who was charged

7 Central Intelligence Agency, *The Weapons Proliferation Threat*, March 1995, p. 2.

8 For example, see the February 7, 1995, Memorandum from the Deputy Secretary of Defense on "BMD Program Logic," quoted in *Congressional Record*, February 15, 1995, p. H1811.

with maintaining control over nuclear weapons, that nuclear warheads have disappeared from former Soviet sites.[9] There are also reports that nuclear weapons have been sold abroad covertly, particularly to Iran.[10] This evidence thus far has been downplayed by U.S. intelligence agencies, perhaps because they are worried more about indigenous development than they are about technology and missile transfers. Team B does not share Defense Secretary William Perry's conclusion that if Libya purchased SS-25 *Sickle* ICBMs, as has been speculated, then Muammar Qadhafi's troops, and perhaps employees, would not be able to operate them.[11]

The key to estimating how long the United States has to respond to a missile threat is not, as is currently the practice, to determine how long it takes a rogue state to produce ICBMs once it has decided to do so. Rather, U.S. planning should be based on how long a rogue state needs to field missiles once the intelligence community has convincing evidence that either their development or purchase is under way.

The evidence thus far is troubling indeed. For example:

- ✗ Iraq tested a booster with potential intercontinental range in 1990, only months after the U.S. intelligence community discovered what it was doing. After the Gulf War, it was discovered that Iraq had been pursuing an extensive, undetected, and covert program to develop nuclear warheads for its ballistic missiles. By authoritative accounts the Iraqis were within 18 months of having the bomb.[12]
- ✗ U.S. intelligence in early 1994 discovered that the North Koreans were developing a long-range missile dubbed the *Taepo Dong 2*. Then Deputy Secretary of Defense John Deutch testified on August 11, 1994, that the *Taepo Dong 2* may be able to strike U.S. territory by the end of this decade.[13] If so, this capability will have arisen only five years after its discovery.[14]

Once the basics of missile technology are mastered, adding more range to the missile is not a great technical challenge. It can be accomplished by adding more thrust and rocket stages. Further, it can be accomplished under the guise of developing space launchers. Every booster capable of placing satellites in orbit can deliver a warhead of the same weight to intercontinental range. And missile sales can create a new missile threat very quickly. After discussions with CIA officials, Republican Congressman Curt Weldon of Pennsylvania concludes that "We now have the unique situation where a Third World nation with the right amount of money can get access to a missile launch capability that can hit any city in America." He further speculates that this threat could develop "within less than three years."[15]

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9 "Empty Containers," *U.S. News and World Report*, April 6, 1992, p. 22.

10 "Iran Has A-Bomb" *The European*, April 30, 1992.

11 See the Federal News Reporter Transcript Service transcript of a February 14, 1995, joint news conference with Secretary of State Warren Christopher and Secretary of Defense William Perry. Perry stated, "I do not believe Libya has an SS-25. Or if they have such a missile, they're not in a position to use it operationally." See also Arnold Beichman, "Ominous Delivery to Libya," *The Washington Times*, February 2, 1995, p. A-16.

12 David Kay, testimony before the Senate Committee on Foreign Relations, Senate Hearing 102-422, *Nuclear Proliferation: Learning from the Iraq Experience* (Washington, D.C.: Government Printing Office, 1992), p. 20.

13 Senate Committee on Armed Services, *Military Implications of the Chemical Weapons Convention* (Washington, D.C.: Government Printing Office, 1994), p. 81.

14 See Keith B. Payne, "Ballistic Missile Proliferation — An Audit," *Jane's Intelligence Review Yearbook*, 1994. The *Taepo Dong* is estimated to have a range of 2,000-6,000 miles. The upper range would enable it to reach most of the Northern U.S. See also "Senate Intelligence Committee Releases Unclassified Intelligence Assessments," Senate Select Committee on Intelligence News Release, May 1, 1995, p. 1. The CIA is quoted as believing that "it is unlikely P'yongyang could deploy Typo Dong I or Typo Dong II missiles before three to five years. However, if P'yongyang has foreshortened its development program, we could see these missiles earlier."

15 In "Rep. Curt Weldon Outlines Ballistic Missile Defense Plans," *Defense Week*, April 10, 1995, p. 8.

For those who think that missile threats from rogue nations are unlikely worst-case scenarios from the future, a history lesson is in order. The fact is that America has already been threatened by a rogue state. One of the most serious and urgent threats the United States ever faced was from Soviet missiles placed in Cuba. History shows that Cuban dictator Fidel Castro recommended to his Soviet sponsors that a nuclear attack be launched against the U.S. It is fortunate for America and the world that cooler heads prevailed in Moscow, but Castro's actions prove that rogue leaders are willing to use nuclear weapons against the U.S.

FORMER SOVIET AND CHINESE ICBMS AND SLBMS

The existence of more than a thousand long-range missiles in former Soviet states and in China constitutes more than a hypothetical threat to U.S. territory, cities, and people.[16] Russia's fragile political situation could lead to a breakdown in the chain of command controlling its huge arsenal, a breakdown which occurred during the attempted coup against Soviet President Mikhail Gorbachev in 1991. Former CIA Director R. James Woolsey recently painted a bleak picture of future U.S.-Russian relations, noting that the current instability suggests a "two-in-three" chance that Russia will become hostile to its neighbors — and a "one-in-three" chance that Russia will become a serious threat to the U.S. The missile threat from Russia and China is discounted by the Clinton Administration. This can be justified only by assuming that the current political situation in the former Soviet Union and China precludes the launch of long-range missiles toward the U.S. The Clinton approach fails to account for the political fragility in the former Soviet Union and China and assumes that accidental or unauthorized missile strikes against U.S. territory will not happen.[17]

Some believe that Russia's agreement to target its missiles against the open seas greatly reduces the threat to America. This view is technically misinformed. Even if the Russians are following this totally unverifiable agreement, they could retarget their missiles in a matter of minutes. This fact was acknowledged by Russian General Igor Sergeyev, who is in charge of the Russian Rocket Forces, in a January 22, 1995, interview on CBS's *60 Minutes*.[18]

The existence of the Chinese intercontinental attack capability is largely ignored by the Clinton Administration. Since the Administration believes that the U.S. nuclear deterrent is sufficient to address the potential missile threat from Russia, it also seems to think that this deterrent is adequate for China. But, again, the Clinton Administration is being overly sanguine about the potential threat from China. As Harvard University professor Samuel Huntington argues, China could become a military threat to its neighbors:

> Buoyed by spectacular economic development, China is rapidly increasing its military spending and vigorously moving forward with the modernization of its armed forces. It is purchasing weapons from the former So-

16 The International Institute for Strategic Studies, *The Military Balance for 1994-1995* (London: Brassey's, 1994).

17 As reported by *Pravda* on February 21, 1990, a former Soviet General, Colonel General S.G. Kochemasov, revealed that the Soviet Union accidentally launched a nuclear-armed missile during maintenance operations — fortunately its engine misfired and the missile crashed only a short distance from its launcher. This accidental launch occurred before the break-up of the Soviet Union when confidence in the control of such missiles was far more justifiable than it is today.

18 During the January 22, 1995, exchange between CBS reporter Ed Bradley and General Sergeyev, Bradley asked how long it would take to retarget a Russian Topol missile (SS-25) — and Sergeyev responded, "The same time it will take the Americans to do it." Bradley then recounted in a voiceover that "It depends on the missile, he told us, but for most, only a matter of minutes."

> viet states; it is developing long-range missiles; in 1992, it tested a one-megaton nuclear device. It is developing power-projection capabilities, acquiring aerial refueling technology, and trying to purchase an aircraft carrier. Its military buildup and assertion of sovereignty over the South China Sea are provoking a multilateral regional arms race in East Asia. China is also a major exporter of arms and weapons technology. It has exported materials to Libya and Iraq that could be used to manufacture nuclear weapons and nerve gas. It has helped Algeria build a reactor suitable for nuclear weapons research and production. China has sold to Iran nuclear technology that American officials believe could only be used to create weapons and apparently has shipped components of 300-mile-range missiles to Pakistan. North Korea has had a nuclear weapons program under way for some time and has sold advanced missiles and missile technology to Syria and Iran. The flow of weapons and weapons technology is generally from East Asia to the Middle East. There is, however, some movement in the reverse direction; China has received Stinger missiles from Pakistan.... A new form of arms competition is thus occurring between the Islamic-Confucian states and the West.[19]

To be sure, China is now focused on economic development and is facing a possible succession struggle after Deng Xiaoping dies, but the U.S. should not dismiss China's future military potential. In fact, the very uncertainty of China's future is a cause of concern.

Political Aspects of the Threat and the U.S. Russian Relationship. Some opponents of vigorous U.S. missile defenses assume that drastic and dangerous Russian reactions would ensue because of aggressive U.S. programs to acquire effective defenses. Invoking the rationale of the Cold War superpower confrontation, they envisage a massive Russian strategic build-up, dangers to the arms control process, and Moscow's utter hostility. But Russia's economy cannot stand the drain of resources caused by the continuation of current strategic arms programs, let alone a massive increase in such outlays.

One strong Russian faction clearly recognizes that they face a need even more pressing than that of the United States for ballistic missile defenses against proliferation. At least in the past, Boris Yeltsin has been a member of this faction. In January 1992, he proposed a Global Protection System, offering to remove any political obstacle to create a multi-national defense against ballistic missiles. When the U.S. failed to capitalize on Yeltsin's offer, opponents of such cooperation gained the upper hand in Russia. Nevertheless, Russian advocates of cooperation in building a global defense against ballistic missiles, by whatever name, still exist.

The opponents, primarily representatives of the old military-industrial complex, advocate stifling U.S. anti-missile efforts. To this end, they are determined to keep intact the best tool available for this purpose — the 1972 Anti-Ballistic Missile (ABM) Treaty. Their opposition could be based on three regrettable, but understandable, premises:

- **The only area in which Russia today holds a distinct advantage over the United States is in deployed national ballistic missile defenses.** Moscow, including an area of about 80,000 square miles around the city, is defended against missile attack.

19 Samuel P. Huntington, "The Clash of Civilizations," *Foreign Affairs*, Summer 1993, p. 47.

- **The key element in any global missile defense system would be the space-borne system upon which all systems of other nations would rely for at least warning and tracking.** This would give the U.S. tremendous strategic advantages.
- **The Russians have very good anti-ballistic missiles for sale to any nation which may feel threatened by ballistic missiles,** and the products of a vigorous U.S. program, unconstrained by the ABM Treaty, would no doubt produce superior defensive systems.

So long as the U.S. is willing to restrict its anti-missile programs to comply with the ABM Treaty, these hard-line Russian factions will dominate, and Russia will remain uncooperative in the matter of ballistic missile defense. This faction has already shown a tendency to re-link the fate of the Strategic Arms Reduction Talks (START) process to strict compliance by America with the ABM Treaty. Upon signing the START I Treaty in 1991, the Soviets unilaterally stated that continued adherence to the ABM Treaty was key to their compliance with START. But Yeltsin's 1992 speech proposing a joint Global Protection System also proposed deeper START reductions that ultimately were incorporated into START II. Thus, the linkage can be overcome through a cooperative deployment of defenses. However, the old linkage has been re-established by recent Russian statements, almost certainly to affect U.S. politics as START II is considered by the Senate.

Should the U.S. decide to deploy missile defenses in concert with other nations or unilaterally, the Yeltsin faction will prevail, and the Russians will cooperate in fielding a defense against a common threat of missile proliferation. Such cooperation would be too obviously in their own interest, and continued refusal to cooperate too much to their disadvantage, for them to do otherwise.

CLINTON'S MISGUIDED OPTIMISM

The Clinton Administration's portrayal of the ballistic missile threat is unjustifiably sanguine, particularly with regard to threats to the territory of the United States. On the one hand, Administration officials have expressed alarm at the proliferation of weapons of mass destruction and ballistic missiles with which to deliver them. On the other hand, the Administration's official view mutes any sense of urgency about protecting the American people from that proliferation threat. The official view is that the only near-term threat is to overseas U.S. forces, friends, and allies and that it comes only from primitive, short-range, "tactical" or "theater" missiles of the Scud variety. Rogue states are alleged to be incapable of developing or otherwise acquiring missiles threatening to the U.S. homeland for the next 10-15 years. Moreover, the Clinton Administration argues that if these states acquire ballistic missiles, they will not be able to operate them. And the potential threat from literally hundreds of Chinese and former Soviet ICBMs is dismissed, presumably on the basis of Russia's and China's not being hostile enough to the U.S.

This optimistic view of the threat is not consistent with the observable pace and nature of proliferation, the technical facts of missile development, or the political instabilities of the former Soviet states and China. The Administration's assessment of the threat is consistent with its slow approach to developing ballistic missile defenses, raising concerns that the Administration's estimate of the threat may have been tailored to match its leisurely pace in building missile defenses. This is a huge mistake. The failure to respond to clear and ominous signs is, in fact, a failure of strategic proportions, potentially threatening U.S. interests worldwide and American security at home.

FUNDAMENTALS OF AN EFFECTIVE GLOBAL DEFENSE

An effective defense must be able to counter long-range, intercontinental-range ballistic missiles (ICBMs) in each of their three phases of flight: 1) the boost phase, 2) the mid-course phase, and 3) the terminal phase (see Figure 2-1). The boost phase occurs while the missile's fuel is still burning as it rises from its launcher. If the defense can destroy the ascending missile in its boost phase before it dispenses its warheads and decoys — fake objects intended to confuse the missile defense tracking system — it can be very effective in reducing the threat.

In the mid-course phase, which occurs in space, multiple warheads must be found among possible decoys, and each must be targeted by an exo-atmospheric defense interceptor. High fidelity sensors are needed to discriminate between warheads and decoys. As the weapons and decoys reenter the Earth's atmosphere, the lighter decoys slow down more quickly than the heavier warheads. Discrimination becomes a much easier task under these conditions. While the warheads can be found more easily after reentry, they may have the capability to maneuver like high-speed aircraft when they are deeper in the atmosphere and thus be difficult to intercept and destroy at this point in flight.[20]

In the late terminal phase, defenses cannot prevent missiles from exploding near the ground. Thus, they are not very effective against the damaging effects of such weapons of mass destruction as nuclear, biological, or chemical warheads.

A top priority is to destroy attacking missiles early in their flight, far away from their intended targets and preferably while they are still rising from their launchers — i.e., in their boost phase. They are at this time the most vulnerable to attack. In the boost phase missiles can be destroyed before they can sub-divide their lethal cargo into multiple, hard-to-hit weapons and decoys that are difficult to identify. Forward-based defenses, if sufficiently fast and close to the threat missile launcher, could provide a boost-phase defense. Boost-phase defenses could,

20 Achieving a maneuvering capability, lower in the atmosphere, is not particularly challenging, as the Gulf War Scud demonstrated. There, in some cases, the crudely modified design simply broke up on reentry, became aerodynamically unstable, and followed a very hard-to-hit "cork screw" path to its intended target. Such a crude design is not very accurate, but accuracy is not required to hit a city with a weapon of mass destruction. To counter even such a crude design (in the lower reaches of the atmosphere where such maneuvers are possible), a defensive interceptor must also be highly maneuverable — more maneuverable than current endo-atmospheric interceptors. Achieving effective intercept capability requires either interceptors with more maneuver capability than current designs or shifting to interceptors designed to intercept higher in the atmosphere, where aerodynamic maneuvers are much more difficult, or outside the atmosphere. This is the approach being taken by the Pentagon's Ballistic Missile Defense Organization (BMDO). Intercepting higher is also more effective in terms of protecting targets from weapons of mass destruction.

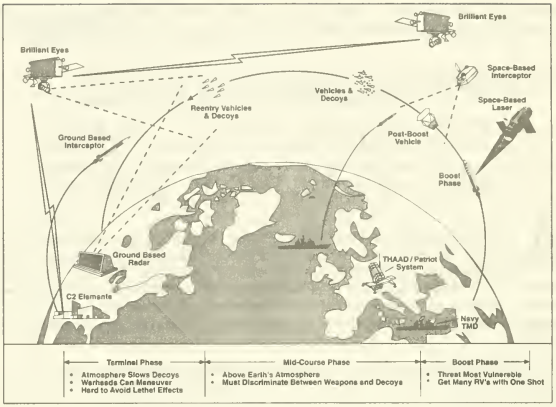

Figure 2-1. Basic Missile Defense Elements

in principle, be based on land, but doing this could prove to be politically controversial and intrusive. Space- and perhaps sea- and air-based defenses are therefore preferable.

Since about 70 percent of the Earth's surface is water, ship-based interceptors can get and stay close to regional "hot spots." These ship-borne systems could intercept some missiles in their boost phase. Sea-based interceptors could defend all of Europe from ships in the Mediterranean Sea. From many locations, they could maintain a "mid-course" and "terminal" defensive shield against missiles launched at the U.S.

Space-based defenses, involving both Space-Based Interceptors (SBIs) and Space-Based Lasers (SBLs), would always be on-station worldwide, and could provide many opportunities to intercept all but very short-range ballistic missiles in all stages of their flight. The faster the defensive interceptor, the farther away from the attacking missile launcher the defense can be placed, but the harder the task of "aiming" the defense. Also the longer the range of the attacking missile, the longer the vulnerability period of the boost phase — and hence the easier the task of the defense. Speed-of-light intercepts, such as with lasers, are feasible and are clearly a part of the needed missile defense architecture. Most of the technology for hit-to-kill interceptors has already been shown to work in space.

The most effective defense architecture employs defenses in layers, providing multiple intercept opportunities against attacking missiles in all their phases of flight. What the offense does to defeat one layer makes it harder to defeat another layer. And depending on where the defense is based, it may provide a *de facto* layered defense capability. Space-based defenses with both hit-to-kill and laser intercept capability, for example, can intercept all but the very shortest range missiles in all phases of their flight.

TYPICAL DEFENSE COVERAGE CHARACTERISTICS

Figures 2-2 and 2-3 illustrate that the longer the range and the faster the speed of the attacking missile, the smaller the ground area the missile defense is able to protect. These figures also show how external sensors can improve that coverage.[21] Against short-range missiles, such as the 350-mile Scuds used in the Gulf War, the Army's Theater High Altitude Area Defense (THAAD) offers substantial improvement over the improved versions of the *Patriot* missile (PAC(2) and PAC(3)). THAAD would enable an exo-atmospheric intercept approximately halfway between the attacking missile's launch point and the intended target of the attacking missile, which is located near the THAAD launcher. Against shorter-range missiles, sensors based in space, in the air, or on land offer no particular improvement in enlarging THAAD's coverage, although they might improve the system's discrimination capability and survivability. For example, defensive interceptors could be launched and engage targets even if the system radar were damaged or destroyed.[22] Furthermore, increasing THAAD's velocity would not greatly improve its coverage against 350-mile range missiles.

Against a higher velocity, longer-range attacking missile, such as the CSS-2 (approximately 2,000-mile or 3,000 km range), *Patriot* has essentially no capability, and THAAD's area coverage, without the aid of external sensors, is reduced by a factor of four, due to the reduced flight time after radar acquisition. However, with the aid of external sensors, THAAD's defended area coverage is increased by roughly a factor of two over the coverage achievable against the shorter-range missile due to the increased available flight time. If THAAD employed a faster interceptor, the improvement would be even greater.[23]

Against the 350-mile (600 km) Scud, doubling the interceptor velocity has relatively little effect. However, against the CSS-2, the higher velocity Navy Upper Tier provides an area of coverage that is larger by almost a factor of ten.

When connected with space-based surveillance and tracking sensors like *Brilliant Eyes*, or other sensors deployed on land, in the air, or at sea, sea-based interceptors could defend all of Europe from ships in the Mediterranean Sea. Assuring allied leaders and publics that such a capability exists could be essential in gaining their approval for moving troops into the region in a future crisis — as was illustrated by the difficulties of moving *Patriot* missiles into South Korea during the 1994 crisis. This attribute is why Team B believes that the Navy Upper Tier should be the nation's top priority TMD program. The early deployment possibilities of the Navy Up-

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21 Improvements in the Army's *Patriot* — PAC(2) and PAC(3) — and the Navy's Standard Missile Air Defense systems will provide mobile land-based and sea-based endo-atmospheric interceptors, constituting the nation's first terminal missile defense to protect military forces. Such systems will have only limited capability in protecting civilians and military personnel from missiles armed with weapons of mass destruction. The Army's Theater High Altitude Area Defense (THAAD) is currently scheduled to be the nation's first wide-area defense, with options to field developmental systems in 1997-1998 and production hardware beginning in about 2002-2003.

22 The availability of early tracking information makes it possible to launch the defensive interceptor shortly after the attacking missile is launched, and before the local defense radar can track it, which can substantially increase the defensive interceptor's range and, therefore, enhance its coverage potential as well.

23 The coverage circles shown in Figures 2-2 and 2-3 are approximate. Real coverage depends on the details of the sensor coverage and the technical features of the interceptor's missiles and are generally not circular and generally not centered at the defense battery. The coverage circles are two-dimensional renderings of "dome charts" presented by Lt. General Malcolm O'Neill, Director of BMDO, to the House National Security Committee on April 4, 1995, as well as rough scalings from them to illustrate the performance against longer-range missiles and for the faster Navy Upper Tier interceptor.

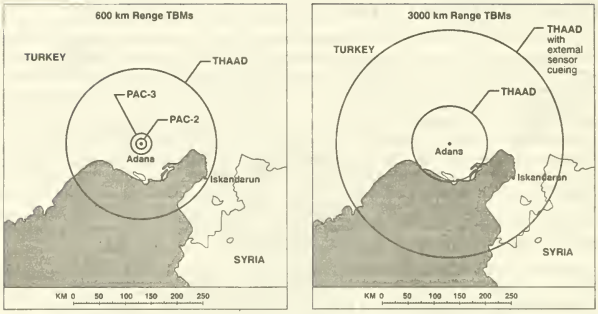

Figure 2-2. Typical Coverage Characteristics of Terminal and Wide-Area Defenses

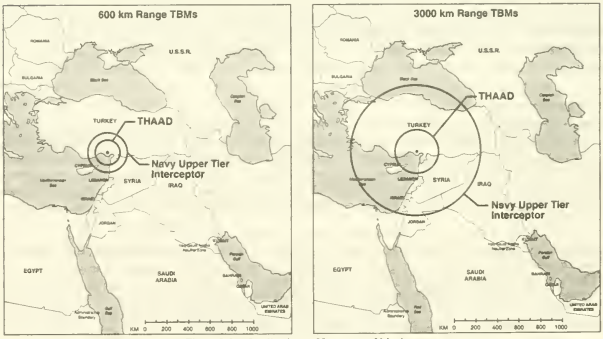

Figure 2-3. Implications of Interceptor Velocity on Defense Coverage

per Tier, using the existing AEGIS infrastructure in conjunction with other sensors, make it a bargain at many times the price.[24]

Sea-based interceptors can defend a large area, but space-based defenses cover the widest possible area. So long as they are fast enough to reach the missile target and powerful enough to destroy it, they can defeat attacking ballistic missiles in all phases of their flight. Kinetic energy space-based interceptors — ones that smash into a missile and destroy it on impact — do not have time to reach shorter range missiles in their boost phase, but they do have multiple opportunities to intercept them throughout the mid-course phase. As illustrated in Figure 2-4, a constellation of 1,000 Space-Based Interceptors would be able to stop missiles with ranges greater than about 200-450 miles, depending on whether the attacking missile is in a "lofted" or "depressed" trajectory.[25]

As illustrated in Figure 2-5, the effectiveness of a space-based interceptor system with 1,000 interceptors grows rapidly as the ranges of threatening missiles grow. This constellation becomes very effective against missiles with ranges greater than about 600 miles. For example, it would provide protection against 20 simultaneous launches of CSS-2 missiles, which have a range of about 2,000 miles.[26]

Space-Based Interceptors, however, can be challenged by the development of countermeasures, particularly submunitions released during the attacking missile's boost phase. Space-Based Lasers can defeat such countermeasures by destroying attacking missiles before they can release their decoys or submunitions. And in the mid-course phase (see Figure 2-1), lasers would perturb lighter decoys, permitting Space-Based Interceptors to discriminate and destroy attacking warheads.

Space-Based Lasers could attack any ballistic missile with a range of over about 75 miles. It could target the booster as soon as it clears the clouds, when it is most vulnerable. Knocking down missiles during their boost phase of flight, before they reach their full velocity, would ensure that the missile is destroyed before it has released its warheads or its countermeasures. For ballistic missiles carrying advanced chemical or biological submunitions, boost-phase intercepts could be essential for achieving an effective defense. If killed early in the boost phase, the booster and its payload will fall back on the launching country, which would pose a potential deterrent against launching such missiles in the first place.

The effect of neutralizing a ballistic missile during the boost phase is illustrated in Figure 2-6. For a 350-mile range missile — typical of the Scud missile employed by Iraq in the Persian Gulf War — total booster burnout occurs about 80 seconds after the missile is launched. The missile would clear the clouds in 20-30 seconds, becoming vulnerable to attack by space-based lasers during the next 50-60 seconds of flight. Because the highest acceleration of the missile occurs near the end of the booster burn, focusing the laser on the booster even one second before burn-

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24 Achieving the full potential of the Navy Upper Tier requires the full exploitation of external sensor data. However, as then Deputy Secretary of Defense John Deutch explained to the Navy League on April 13, the Clinton Administration's version of the Navy Upper Tier limits this potential benefit by constraining the system to use only data from the AEGIS SPY-1 radar — a constraint which assures ABM Treaty compliance but also severely restrains the effectiveness of the Navy Upper Tier as a theater missile defense. See Bill Gertz, "Navy Missile Defense Shouldn't Be Issue In Talks, Deutch Asserts: Upper Tier Legal Under ABM Treaty," *The Washington Times*, April 14, 1995, p. A-3.

25 Depressed trajectory missiles fly outside the atmosphere for shorter periods of time and are therefore subject to interception by space-based interceptors for less time than standard missiles of equivalent range.

26 See "Conceptual and Burden Sharing Issues Related to Space-Based Ballistic Missile Defense Interceptors," *DOD Report to Congress* in response to directions in the FY 1992 Defense Authorization Act, March 1992.

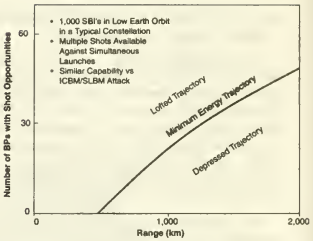
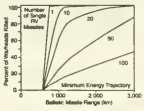
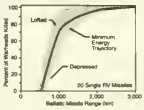


Figure 2-4. Intercept Opportunities for a Constellation of 1,000 Space-Based Interceptors





- 1,000 SBI's at Low Earth Orbit in a Typical Constellation
- Multiple Shots Available Against Simultaneous Launches
- Similar Capability vs ICBM/SLBM Attack

Figure 2-5. Capability of 1,000 Space-Based Interceptors Against Libyan Missiles

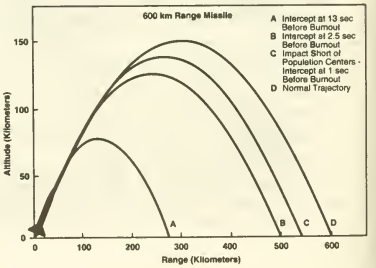


Figure 2-6. Shortfalls Induced by Intercepting a 600 km Ballistic Missile in Its Boost Phase

Figure 2-7. Space-Based Lasers Provide Overlapping Coverage Against a Global Threat

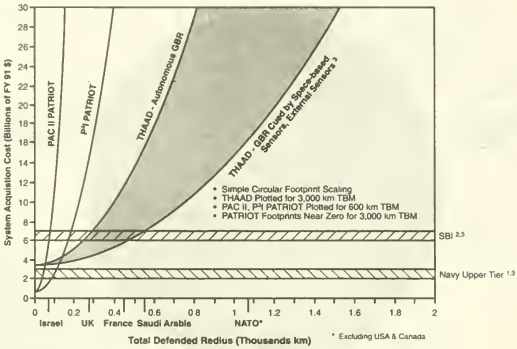
out would cause the missile's payload to fall short of its intended target by more than 30 miles. Destroying the booster at 13 seconds before burnout cuts the range by more than half. As a result, the debris from the destroyed missile could fall back on the territory of the country that launched it.[27]

Each of the deployed lasers could provide booster kill capability at a minimum rate of five per minute over more than one-tenth of the Earth's surface, as illustrated in Figure 2-7. A deployment of 12 space-based lasers would provide continuous coverage of all potential Third World launch areas with the capability of negating in boost phase a minimum of five ballistic missiles per minute, going from anywhere to anywhere. For theater-class missiles, which boost for one to two minutes, this means that a minimum of five to ten simultaneously launched missiles could be negated in boost phase. For intercontinental-range ballistic missiles, which boost for three to five minutes, a minimum of 15-25 simultaneous missile launches could be negated.

COST CONSIDERATIONS

Defending a wide area from space and, where possible, from the sea is far less expensive than building a very large number of ground-based interceptor sites. For example, Figure 2-8 illustrates that deploying the Theater High Altitude Area Defense (THAAD) system to defend Europe would cost substantially more than either the Navy Upper Tier or Space-Based Interceptors. THAAD is a ground-based system designed to intercept theater-range missiles. Further-

27 This discussion and Figures 2-6 and 2-7 are drawn from a March 14, 1995, letter to Senator Strom Thurmond from the industrial team conducting research and development on space-based lasers. The letter was signed by Vance Coffman, President of the Space and Strategic Missiles Sector of Lockheed-Martin Corporation; Timothy W. Hannemann, Executive Vice President, Space and Electronics Group, TRW; and Edward T. Gerry, President W.J. Schafer Associates, Inc. While Senator Thurmond solicited the analysis provided in the letter to him, its content does not necessarily reflect his views on the requirements for deploying space-based lasers.


System Acquisition Cost (Billions of FY 91 $)
PAC II PATRIOT
PV PATRIOT
THAAD - Autonomous GBR
THAAD - GBR Cued by Space-based Sensors, External Sensors *
• Simple Circular Footprint Scaling
• THAAD Plotted for 3,000 km TBM
• PAC II, PV PATRIOT Plotted for 600 km TBM
• PATRIOT Footprints Near Zero for 3,000 km TBM
SBI 2,3
Navy Upper Tier 1,3
Israel
UK
France
Saudi Arabia
NATO*
Total Defended Redius (Thousands km)
* Excluding USA & Canada

Notes. 1)Navy Upper Tier Builds on ~$50B Invested in AEGIS Infrastructure.
2)SBI $6-7B Deployment Shown, $12-15B 10 Yr Lifecycle Cost.
3)Systems Requiring Brilliant Eyes ($4-5B) for Full Mid-Course Intercept Capability

Figure 2-8. Cost to Defend Large Areas from the Ground, Sea, and Space

tors. THAAD is a ground-based system designed to intercept theater-range missiles. Furthermore, these systems do not require the expensive manpower and logistics support associated with moving ground-based systems into a conflict zone in a crisis.[28] As the number of countries with ballistic missiles continues to grow, and the range of missiles increases, the economic advantages of sea-based and space-based defenses also grows.

Figure 2-8 compares the total cost of deploying the Navy Upper Tier or 1,000 Space-Based Interceptors (both of which provide global coverage, including for the United States) with the costs of building Patriot and/or THAAD batteries to defend large areas. Key points to be drawn from Figure 2-8 include:

✓ **External sensor information certainly improves the cost effectiveness of THAAD in any given local regional context.** This information permits defensive interceptors to be launched long before their associated radar picks up an attacking missile. Therefore, the defensive interceptor can defend a larger area. Clearly, all theater defenses should be designed to exploit fully information from all kinds of sensors, including space-based sensors, beyond the radar specifically associated with a given set of theater defense interceptors. Indeed, future theater defense systems that fully exploit today's sensor and communications/data processing technology will not require a local (co-located) radar.

✓ **Even after external sensor data are exploited by THAAD, the Navy Upper Tier and Space-Based Interceptors are much less expensive in defending areas larger than about half of the European states of NATO.** The larger the area to be defended, the greater the cost advantage to sea- and space-based defenses.

28 During Desert Shield/Desert Storm, more than 450 C-141 equivalent sorties were required to transport ground-based defenses into the theater.

✓ **If an effective ground-based defense for the U.S. and Canada were added to the defense of the European NATO states, the costs of an all ground-based defense architecture would escalate greatly; and still much of the world would be unprotected — e.g., including Northeast Asia.** For example, the Bush Administration estimated that four to six sites for a ground-based system needed to provide an effective defense of North America, Alaska, and Hawaii would cost about $35 billion in constant 1991 dollars.

The Clinton Administration is budgeting about $2 billion over the next five years for a "technology readiness" program without any commitment to deployment. In response to congressional pressures, the Administration has been studying an option which, if exercised, could modify and make operational about 20 *Minuteman* missiles in four to six years for under $5 billion. While technically feasible in providing an interim limited defense (probably excluding Alaska and Hawaii for operational reasons), this option would not replace the need to spend an additional $35 billion to deploy a more effective ground-based system such as was contemplated by the Bush Administration. Thus, a less expensive, more effective sea- and space-based defense architecture can protect both the American people and their overseas troops, friends, and allies.[29]

EFFECTIVENESS CONSIDERATIONS

Ballistic missiles carrying chemical, biological, or nuclear warheads place the most stressful demands on a ballistic missile defense system.[30] Even one warhead that reaches its target would be catastrophic, especially if it were to land on a city. This capability to threaten American lives and territory in such a devastating way could give an enemy enormous power and influence over U.S. actions. Such a nuclear threat to the U.S. homeland could act as a sort of checkmate on the use of U.S. conventional forces against a hostile nuclear power. The challenge for an effective defense is to "devalue" this threat with a high degree of confidence in successfully intercepting an incoming missile. Layered defenses are required to achieve such high confidence.

For example, consider a salvo attack by ten single-warhead missiles.[31] A single-layer defense with 90 percent effectiveness (a demanding but achievable acquisition objective) would be expected to permit one missile to leak through — hence the need for a layered defense. A defense with two independent layers, each of which has 90 percent effectiveness, would be expected to destroy 99 of 100 missiles — or all ten missiles in nine of ten salvos of ten missiles each. If the effectiveness dropped to 80 percent, then the defense would be expected to destroy 96 of 100 missiles — or all ten missiles in at least six of ten salvos of ten missiles each. And if the effectiveness

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29 Figure 2-8 was adapted from a figure in "Conceptual and Burden Sharing Issues Related to Space-Based Ballistic Missile Defense Interceptors," *DOD Report to Congress* in response to directions in the FY 1992 Defense Authorization Act, March 1992. The curves for *Patriot* and THAAD are unchanged from that report. The cost estimates for SBI and Navy Upper Tier are the costs described in this report. The trends depicted in the figure are illustrative of the scaling characteristics of the systems discussed. However, the calculations are necessarily very simplified and the *Patriot* curves are for a different threat missile.

30 Some have called chemical and biological weapons "poor man's nuclear weapons," and the ease with which they can be created — in secret — makes them potentially even more threatening than nuclear weapons. It is reported that Japanese investigators believe that the doomsday cult suspected of poisoning Tokyo's subway system on March 20, 1995, was preparing enough nerve gas to kill literally *billions* of people. See "Group Had Chemicals to Destroy Mankind," *The Washington Post*, April 1, 1995, p. A7.

31 Such a salvo, or simultaneous launch, of ten missiles would be more demanding of the defense than experienced during the Gulf War.

dropped to 70 percent, then one nuclear-armed missile from a ten-missile salvo would be expected to leak through the defense.

Assuring the independence upon which the validity of such calculations depends is not easy. Independently operated defensive layers and independent technologies do not necessarily assure independence from an integrated systems/engagement perspective. On the one hand, two intercept attempts (even by the same defense system) could be independent events, especially when the first misses cleanly. On the other hand, an exo-atmospheric hit-to-kill interceptor system, such as THAAD, and an endo-atmospheric proximity-fused, explosive-armed interceptor system, such as *Patriot*, may not have independent engagements, in spite of their independent technologies and operational characteristics.

For example, a near miss by THAAD could cause the attacking missile to break up in mid-course without being destroyed — and the resulting debris cloud and/or inadvertently maneuvering warhead could significantly reduce the effectiveness of a second intercept attempt, by either THAAD or *Patriot*, from that which existed in the absence of the first intercept attempt. In that case, the analysis of the last paragraph would overestimate the combined effectiveness of a THAAD/*Patriot* layered defense.

This problem is exacerbated by the fact that, except for reliability failures, clean misses by the first intercept attempt are unlikely. Therefore, high first-shot success probabilities are needed. To maximize the effectiveness of the first intercept attempt and to minimize the impact of engagement peculiarities on the lower tier defense, the first intercept should be attempted as high and/or as far away as possible. Furthermore, a truly independent first shot is required if very low leakage is needed — as it is to defend civilian populations and thereby assure U.S. freedom of action in the face of an adversary seeking to intimidate an opposing coalition.

Consequently, an effective boost-phase intercept capability would be most desirable. Furthermore, an effective early boost-phase defense would mean that the debris from the intercept would fall on the territory of the party launching the missile attack — a fact that could have substantial value in deterring such an attack in the first place, especially for missiles armed with weapons of mass destruction.

As illustrated in Figure 2-9, interceptors co-located with the defended target can do no better than intercept an attacking missile in the second half of its flight, that is, after it has reached its highest point or apogee. If located nearer the launch point, on the ground, in the air, or at sea, interceptors could destroy missiles in their ascent phase. Only if the interceptors were close enough to the incoming missile and fast enough to reach it could they knock down missiles in their boost phase.[32]

Figure 2-10 illustrates that a Space-Based Interceptor system has multiple shot opportunities for an ICBM-class target, beginning in the boost phase and extending throughout the entire mid-course phase. In fact, it can target a missile until it returns too deeply into the Earth's atmosphere, or below a 50 mile altitude.[33] A constellation of 1,000 space-based interceptors would put five interceptors within the range needed to destroy a 5,500-mile-range missile in its boost phase. It would put 30-35 interceptors within range to demolish the same missile in its post-boost phase. Finally, it would put 125-135 interceptors to have three independent opportunities (shoot-look-shoot-look-shoot) within range to destroy the missile in its mid-course phase. In ad-

32 Since boost-phase interceptors are most desirable, it is counterproductive to limit interceptor velocity and/or mobility — as has been suggested in the recent negotiations between the U.S. and Russia.

33 Specially designed interceptors could accommodate the atmospheric heating that would accompany reentry down to 25 to 35 miles.

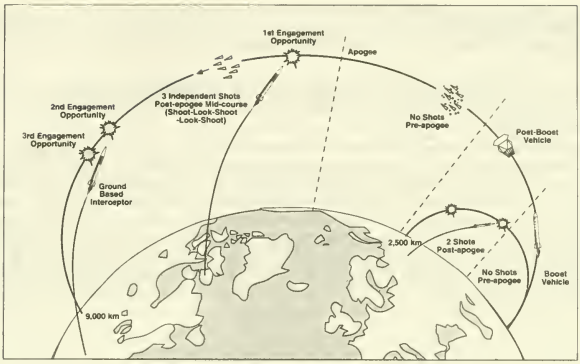

Figure 2-9. Shot Opportunities for Ground-Based Interceptors

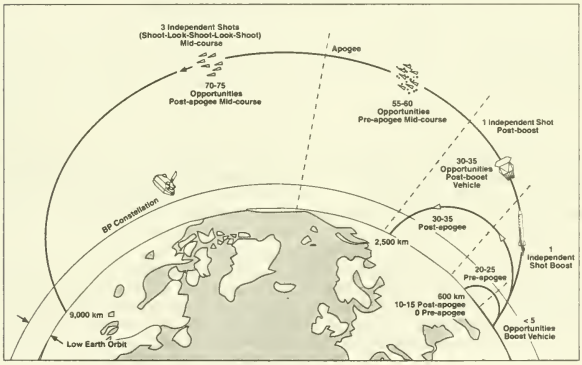

Figure 2-10. 1,000 Space-Based Interceptors Have Many Shot Opportunities

dition, there would be multiple opportunities to destroy intermediate- and medium-range missiles because they travel outside the atmosphere for a sufficient length of time. As the attacking missile's range decreases, however, these intercept opportunities occur later in the missile's flight.[34]

Improvements in initial interceptor designs (suitably modified for high acceleration operations) could extend the boost phase capability at least to the longer-range, longer burn time end of the theater missile threat spectrum.

The complementary features of a combined Space-Based Laser/Space-Based Interceptor system would provide a very impressive capability which would be difficult to defeat. It could provide boost-phase intercept capability against all but very short-range missiles (less than 75 miles). Moreover, its mid-course discrimination capability could substantially increase the effectiveness of Space-Based Interceptors and other mid-course interceptors as well. If efforts were taken to harden the booster against laser effects, the added weight would limit the attacking missile's mid-course countermeasures suite (additional warheads and decoys), improving the effectiveness of the Space-Based Interceptors. Conversely, efforts to counter the Space-Based Interceptors are likely to make the Space-Based Laser more effective by allowing less weight to be added to the missile body.

34 Intercept opportunities against the Gulf War Scud would have all been in their post-apogee flight. Nevertheless, detailed analysis of the data from the Gulf War has indicated that every Scud launched by Iraq could have been intercepted by this space-based interceptor constellation.

Chapter Three

GLOBAL DEFENSE: FIRST FROM THE SEA, THEN FROM SPACE

The clear, present, and growing danger posed by ballistic missiles of all ranges compels an immediate response to defend the American people and their overseas troops, friends, and allies. The least expensive and most effective solution to this global problem is a global defense, deployed first at sea within three to four years and then in space early in the next decade. But the programs of the Clinton Administration must be changed.

Programs to build "theater" defenses to defend allies and U.S. forces overseas should not be given priority over programs to build defenses for American citizens and territory. To be sure, U.S. troops overseas should be defended against missile attack. But defending American territory and citizens is just as urgent. No responsible President should ask American taxpayers to pay for protecting the citizens of other nations while leaving America defenseless.

Yet this is precisely what President Bill Clinton is doing. In short, he is asking the American people to pay for the defense of other nations while leaving America vulnerable to missile attack. While the Clinton Administration views overseas defenses as worthy of support, it mistakenly believes that defending America will unleash a nuclear arms race. It apparently believes that reductions in offensive nuclear weapons will be reversed as other countries, including Russia, build more offensive weapons to overwhelm the defensive system.

This fear is unfounded. It should be recalled that the INF and START Treaties were negotiated while the U.S. advocated SDI development and deployment vigorously. And, in 1992, Russian President Boris Yeltsin advocated cooperation on building a global defense and even deeper START reductions — leading to the START II Treaty. Indeed, an effective global defense will discourage some nations from seeking to acquire ballistic missiles and will make American security commitments more credible. These attributes will promote U.S. non-proliferation goals.

To handle the global threat, defenses must be available worldwide and always "on the scene." A global presence is needed to counter the missile's potential for blackmail, terror, and destruction. It is politically difficult to mobilize defenses against a threat after it becomes pressing — as was illustrated by the difficulty in moving *Patriot* to South Korea in 1994 to defend against North Korean missiles. Without a ready response, including strategic defenses, the U.S. will be vulnerable to the blackmail and terror waged by otherwise third-rate powers that are armed with missiles and weapons of mass destruction.

GLOBAL DEFENSE: FROM THE SEA

Since most of the Earth's surface is water, ship-based interceptors can reach and stay close to regional "hot spots." Deployed at sea near the coasts of potentially threatening states, sea-based interceptors could destroy enemy missiles in their boost phase. In the open seas they could tar-

get enemy missiles in their mid-course phase, while deployed close to home or near the coastlines of allies, they could provide a terminal defense.

Sea-based defenses have other advantages. They are cost-effective because the Navy has already invested in the ships capable of carrying missile defense systems. Moreover, the Navy's ships are routinely deployed — they can establish a defensive shield between rogue states and nations they may threaten with a missile attack either immediately or in short order. Finally, they present no political problems when the need arises to deploy defenses during a regional crisis.

The earliest, least expensive, and politically least intrusive way to achieve a global defense is to build on the nearly $50 billion the U.S. has already invested in the Navy's AEGIS system. The AEGIS system has been deployed on Navy cruisers and destroyers to provide defenses against aircraft. The system can be upgraded and the ships armed with a modified *Standard* surface-to-air missile. The Navy system will initially provide protection against missile attacks for only a limited area, with the Navy Lower Tier program. For a broader level of defense, further modifications will be needed. These include moving to a new design for the *Standard* missile. If maximum effectiveness is to be achieved, the AEGIS system will need to be able to exploit targeting information from radar and other sensors, including those in space, that are not located with the defensive interceptors. Then Navy Upper Tier interceptors launched from AEGIS cruisers steaming in the Sea of Japan, the Mediterranean Sea, the North Atlantic, or the North Pacific could intercept missiles launched from North Korea, North Africa, and the Middle East toward various targets around the world, including the U.S.

The first generation Navy Upper Tier system, however, would not be very effective against ICBMs from the former Soviet Union. The reason: these missiles have "dimmer" signatures making them harder to hit with first generation interceptors and because the initial interceptors cannot reach Russian ICBMs headed toward the U.S. heartland, even if the AEGIS cruisers were based in North American ports. However, the interceptors, along with their launchers, could at little expense be placed on a barge in the Great Lakes — or on a concrete pad at Grand Forks, North Dakota — to fill this gap.

For a total of $2 billion-$3 billion more than the Clinton Administration has budgeted for Navy theater missile defense programs, the first generation of a Navy Upper Tier defense could begin operations in three years. Eventually a total of 650 Upper Tier interceptors could be deployed on 22 AEGIS cruisers. This would take no more than six years to accomplish.

This funding is sufficient also to connect external sensors, including space-based sensors, to the AEGIS command and control system. Providing targeting information to the AEGIS system from these external sensors will supplement the information provided by the AEGIS system's own SPY-1 radar and allow interceptors to "launch on remote data." This means the interceptor can be launched on the basis of the information provided by external sensors and before the attacking missile is picked up by the SPY-1 radar. This would permit attacking missiles to be intercepted much earlier in their flight trajectories, substantially widening the area that can be defended, especially against higher velocity, longer-range theater ballistic missiles. Without the ability to launch on remote data, the AEGIS system would be less capable than THAAD because the latter's radar is more capable than the SPY-1 radar. But with the ability to launch on remote data, the AEGIS system would be much more capable than THAAD (see Figure 2-3).

The Clinton Administration's reading of the ambiguous ABM Treaty has apparently led it to believe that allowing the AEGIS system to receive targeting information from sensors external to the system's own radar will violate the ABM Treaty.[35] The treaty prohibits giving non-ABM systems, including theater missile defense systems, an "ABM capability" or "testing them in an ABM mode." The meaning of these terms, however, was not agreed. Yet it is generally agreed that the ABM Treaty was never intended to impose any restrictions on theater defense systems. On this basis, Congress should direct the Navy to remove the ABM-Treaty-related restraints the Administration is imposing on the Navy Upper Tier system, and by extension on all other theater defense systems.

To achieve a limited U.S. homeland defense capability, the Upper Tier interceptors must be launched using "remote data" from ground-based, sea-based, air-based, or space-based sensors. These include early warning radars located in Greenland and the United Kingdom that were deployed prior to the ratification of the ABM Treaty. Other sensors such as early warning satellites that were deployed more recently might also track a missile attacking the U.S. These sensors can provide a wider range of data on an attacking missile than that obtained from the AEGIS SPY-1 radar co-located with the Upper Tier interceptors.

Fully exploiting state-of-the-art technology in this way would exceed the restraints being imposed unilaterally by the Clinton Administration under its interpretation of the ABM Treaty. These restraints not only limit the effectiveness of the Navy Upper Tier in defending our overseas troops, friends, and allies, but also would deny a defense for the American people.

Improvements in the AEGIS system would be required to defend against Russian or other more advanced ICBMs. These improvements include a larger interceptor with an improved sensor and countermeasures capabilities, which could provide an effective ship-based U.S. defense against a limited number of current generation Russian ICBMs.[36] Nevertheless, even at START II levels, Russia would retain many times the number of ballistic missiles needed to overwhelm even a second generation AEGIS defense in a nuclear strike.

GLOBAL DEFENSE: FROM SPACE

The global defense provided by the Navy Upper Tier System should be supplemented by space-based systems. These include space-based sensors such as *Brilliant Eyes*, which can also improve the capabilities of the Navy Upper Tier systems. Space-based defenses should include the Space-Based Interceptor (SBI), which is a kinetic energy weapon, and the Space-Based Laser (SBL), which is a directed-energy or laser weapon. These programs have been sharply curtailed or eliminated by the Clinton Administration. Ultimately, these space-based systems are needed to provide continuous global coverage, enhance the capabilities of terrestrially based defenses, and increase the effectiveness of an overall layered defense architecture.

Brilliant Eyes, with a fully capable sensor suite, could provide the Navy Upper Tier and THAAD systems with the greatest possible intercept range against near-term threat missiles. It could also enhance these systems' capabilities against offensive countermeasures. With a total investment of $4 billion-$5 billion, deployment could begin around the turn of the century. *Bril-*

35 Bill Gertz, "Navy Missile Defense Shouldn't Be Issue In Talks, Deutch Asserts: Upper Tier Legal Under ABM Treaty," *The Washington Times*, April 14, 1995, p. A-3.

36 The larger missile would require basing the interceptors in a "six pack" configuration, as opposed to the existing "eight pack" vertical launch configuration.

liant Eyes could also provide a much-needed space-based space surveillance capability, currently absent from the U.S. space architecture.

A robust system of space defenses consisting of SBIs and SBLs should be fielded as soon as funding and political constraints would permit. In addition to complementing terrestrially based defenses, SBIs and SBLs would complement each other as independent layers to the overall defense architecture.

SBIs could provide mid-course and high endo-atmospheric intercept opportunities against ballistic missiles with ranges longer than 150-300 miles. Against sufficiently long-range ballistic missiles, SBIs could have boost-phase intercept capability. SBI system concepts are simpler than those of current ground-based interceptor systems. U.S. industry, without government sponsorship, is already exploiting the same technology and system architecture needed to deploy low-altitude, satellite systems. Last year, the award-winning *Clementine* mission demonstrated the workability in space (called space-qualified) of essentially all of the first generation *Brilliant Pebbles* hardware. If the *Brilliant Pebbles* program were reinstated under streamlined management and with full funding, deployment could begin by the end of the decade for an investment of $4 billion-$5 billion.[37] The total acquisition cost for deploying and maintaining a 1,000 SBI constellation for ten years after deployment would be $12 billion-$15 billion.[38]

Space-Based Lasers, which are in the technology demonstration stage, would provide a boost-phase intercept capability against missiles with ranges greater than 75 miles. This capability is necessary to defeat attacking missiles that release multiple bomblets while rising from their launchers. SBLs could not intercept missiles during their mid-course and terminal phases, but would provide important discrimination data to help SBIs counter future offensive missile countermeasures. With streamlined management and full funding, a space-based prototype could be tested late in this decade and a constellation of twelve SBLs fielded by the middle of the next decade. Acquisition (including for an appropriate space launcher) and ten-year operating costs through about 2015 are estimated to be about $15 billion-$18 billion.

RELIEF FROM THE ABM TREATY IS ESSENTIAL

No effective U.S. homeland defense can be deployed so long as the ABM Treaty remains in force. This treaty limits the U.S. and the former Soviet Union to 100 ground-based interceptors at a single site.[39] Purportedly to "strengthen" the ABM Treaty, the Clinton Administration has sought agreements that would limit the effectiveness of theater defenses and unilaterally restrict U.S. research and development activities.

The ABM Treaty was intended to prohibit effective defenses against "strategic" ballistic missiles — although "strategic" ballistic missiles were not defined. Moreover, under the terms of the treaty, theater missile defense interceptors, those capable of countering short- and intermediate-range missiles, can neither be given an ABM "capability" nor "tested in an ABM mode." These terms were not defined by the ABM Treaty either.

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37 *Brilliant Pebbles* was fully approved as a Major Defense Acquisition Program in 1992, with two contractor teams working toward Demonstration and Validation. It was cancelled in 1993 by the Clinton Administration.

38 This cost estimate includes replacing each SBI once — i.e., launching 2,000 SBIs over the lifetime of the system — through about 2015).

39 An effective defense requires more interceptors and much greater area coverage. As shown in Figure 2-6, the least expensive way to achieve global, effective defenses requires sea- and space-basing — both of which are prohibited by the ABM Treaty, if they are taken as "ABM systems."

The resulting ambiguities surrounding the ABM Treaty have caused many difficulties of interpretation. These have been exploited by ardent supporters of the treaty and the U.S. government to constrain rather than to provide expanded latitude for U.S. research and development programs. The result has been not only added cost and risk, but reduced system effectiveness. During the Cold War, a double standard arose whereby the U.S. was reluctant to charge the former Soviet Union with violations of the ABM Treaty, while it unilaterally insisted on strict restraints on American missile defense programs.[40]

The legacy of this double standard is evident today in the U.S.-Russian negotiations on theater missile defenses. For example, the Soviets deployed their SA-10 and SA-12 anti-missile systems without obtaining an agreement from the U.S. that they were theater missile defense systems and thus not subject to ABM Treaty restrictions. Nor have the Russians sought an agreement from the U.S. that their S-300 and S-500 interceptor systems are theater missile systems. Yet the Clinton Administration not only has consulted with the Russians regarding comparable U.S. systems, but also has made concessions that would severely limit U.S. theater defenses. These restrictions have included imposing limits on the velocity of the target missile in tests, the speed of the interceptor, and the range of the interceptor, among others.

The congressional leadership has been stoutly resisting the Clinton Administration's attempts to impose such restrictions, communicating its concerns to the President in no fewer than eight letters signed by virtually all of the chairmen of the key committees and subcommittees. In their May 2, 1995, letter in advance of the Moscow Summit, 50 Senators urged President Clinton not to take any actions "which would politically strengthen the 1972 Anti-Ballistic Missile (ABM) Treaty, expand its scope, increase the number of signatories, or otherwise add impediments to the development or deployment of effective U.S. theater missile defenses." Yet Presidents Clinton and Yeltsin issued a Joint Statement on May 10, 1995, which did just that. For example, it suggests limits on the scale of deployment "in number and geographic scope" of theater missile defense systems. Further, it explicitly pledges allegiance to the ABM Treaty as a "cornerstone of strategic stability" — code words for continuing the Cold War's mutual suicide pact into the new world disorder.

The Clinton Administration thus completely ignores the sound advice of Henry Kissinger, the principal architect of the ABM Treaty, who has written:

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40 For example, on the one hand, the U.S. deliberated for over a year after discovering the Krasnoyarsk radar before it resolved to charge the Soviet Union with a violation of the ABM Treaty. Yet, this football field size radar — which went undiscovered for years after its construction was undertaken — was a clear, unambiguous violation. Soviet Foreign Minister Shevardnadze finally admitted as much in 1989, after five years of Soviet (and U.S. apologists') denials. On the other hand, after discovering that the Soviets had integrated their early warning radar into the Moscow ABM system, the U.S. again deliberated for over a year before it declared in the President's 1993 Report to Congress on Soviet Noncompliance (January 14, 1993) that this was not a violation. In this instance, the Soviet activities clearly exceeded the restraints that the U.S. had imposed upon its own programs to be compliant with the treaty. In this case, the U.S. simply had not taken advantage of the Treaty's ambiguities and the Soviets had. Interestingly enough, the President's report stipulated that "the U.S. Government will not consider as prohibited the handover of precise target state vectors by properly located and oriented early warning radar to ABM systems or ABM components." This precedent should provide a basis for enabling the Navy Upper Tier to "launch on remote data" and the exploitation of *Brilliant Eyes* data in providing initial targeting vectors to extend the range of missile defense interceptors. Yet, as discussed earlier, the Clinton Administration is restraining the capabilities of these systems, regressing to a position directly analogous to the prior U.S. position on early warning radar.

> A bipartisan approach is needed to come to grips with the nature of nuclear strategy in the post-Cold War world. For the end of bipolarity has also sounded the death knell to the theory of Mutual Assured Destruction, which has driven much of the debate. Devised in the late 1960s, that doctrine based security on the deliberate and agreed total vulnerability of civilian populations. The purpose was to render war so catastrophic that even the most reckless policy makers would recoil from it.
>
> But the end of the Cold War has made such a strategy largely irrelevant. Barely plausible when there was only one nuclear opponent, the theory makes no sense in a multipolar world of proliferating nuclear powers. Mutual destruction is not likely to work against religious fanatics: desperate leaders may blackmail with nuclear weapons; blackmail or accidents could run out of control. And when these dangers materialize, the refusal to have made timely provision will shake confidence in all institutions of government. At a minimum, the rudiments of a defense capable of rapid expansion should be put into place.[41]

Ironically, the Clinton Administration's seemingly blind adherence to the ABM Treaty, which is based on the theory of Mutual Assured Destruction (or MAD), is at odds with statements made by Defense Secretary William Perry. When he introduced the Clinton Administration's Nuclear Posture Review on September 20, 1995, he said his "number one priority is to put MAD behind us for good, to replace it with Mutual Assured Safety."[42]

The current negotiations should be redirected to resume the Bush Administration's discussions with Russia and others on how to build cooperatively a global protection system to protect the world community. A proposal to do this was made by President Yeltsin at the United Nations on January 31, 1992. At the same time, Yeltsin called for deeper reductions in offensive nuclear arms, leading to the START II Treaty. There is no reason now to argue that building such a missile defense system would undermine START II.

The U.S. should assert that very effective ballistic missile defenses are essential to preserving the peace in the new post-Cold War era. It should also try to persuade other nations, including Russia, that cooperation in developing and deploying missile defenses is needed to counter the ballistic missile proliferation that threatens the security of numerous regions around the world. While indicating a willingness to agree with any nation that wishes to cooperate to build and operate missile defenses as rapidly as possible, the U.S. should make clear that it will not reduce the effectiveness of either theater or strategic defenses by slavishly adhering to the constraints imposed by an outdated treaty.

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41 Henry Kissinger, "Ready for Revitalizing," *The Washington Post*, March 9, 1995, p. A21.

42 The Department of Defense, "Remarks Prepared for Delivery By Secretary of Defense William J. Perry to The Henry L. Stimson Center," News Release No. 535-94, September 20, 1994.

CONCLUSION

The Clinton Administration refuses to give serious consideration to building an effective missile defense program, whether to protect the U.S. homeland or U.S. troops abroad. Team B continues to recommend that global defenses be deployed urgently—initially from the sea and then from space. These are the least expensive and most effective defenses possible, and the U.S. can begin their deployment by the end of the decade if it has the political will to do so. As Team B concluded in 1995, the ultimate issue in the missile defense debate is not technology, nor even cost, but political will.

The test of the nation's political will to defend itself—and a test of the U.S. Senate's determination to defend its constitutional prerogatives—will be in dealing with the 1972 ABM Treaty. Some in Congress and the defense community believe the ABM Treaty is not a near-term problem; they think dealing with the treaty can be deferred to some distant future. But they are wrong. The ABM Treaty is stifling the development of today's most capable and effective defense systems and perpetuating the vulnerability of the American people and their troops, bases, and allies overseas. Continuing to appease the Russians in ABM Treaty negotiations delays U.S. efforts to build needed defenses, and may permanently impair American interests. Team B believes that U.S. supreme interests are threatened by realities that are fundamentally different from those of the Cold War. The time has come for the U.S. to exercise its Article XV right and, as a matter of supreme national interest, withdraw from the ABM Treaty and build the needed defenses.

Article 1, Section 8 of the U.S. Constitution confers on the U.S. Congress the power and the duty to "provide for the common Defense." This entails the raising, support, and regulation of the nation's armed forces. In other words, Congress shares the responsibility for national security with the President, the commander in chief. This shared but direct responsibility for the security of the nation is an important element of the constitutional system of checks and balances.

The Clinton Administration continues to keep Americans vulnerable while hiding behind a smokescreen of positive sounding but meaningless policy declarations. It is now clear that the Clinton Administration will remain derelict in the duties required of the office of the commander in chief by failing to provide for the common defense. Congress must fulfill its constitutional duty to check the excesses of the executive branch. It must stop the improper attempts to broaden the ABM Treaty and counterbalance the executive's dereliction of duty by pressing for the most capable and effective missile defense technology permits.

Someday soon, it is a near certainty that U.S. forces abroad, and possibly even the U.S. homeland, will come under ballistic missile attack. Such an attack may occur with missiles carrying chemical, biological, or nuclear warheads. If that day comes, the American people will hold responsible all those in positions of public trust who failed to carry out their constitutional and moral duty.

Appendix A

THREAT DEVELOPMENTS

Events of the past year have affirmed Team B's original conclusion that there is a clear, present, and growing threat to the U.S. homeland from ballistic missiles armed with weapons of mass destruction and that this threat warrants the deployment of effective anti-missile defenses for the American people as quickly as possible. Consider some notable developments regarding the existing threat from Russia and China—and the potential threat from rogue states:

RUSSIA

In his State of the Union address to Congress last January, President Clinton emphasized that Russian missiles were no longer pointed at American cities. What he did not say was that they could be retargeted in a matter of minutes—as Russian military leaders have publicly stated. There is little reason to relax while observing the evolving political and military scene in Russia, which is anything but stable and predictable.

Shortly after leaving office, former CIA Director James Woolsey gave his personal judgment that in the next ten years there is a "two-in-three" chance of violent conflict between Russia and its neighbors—and a "one-in-three" chance that Russia will become a serious threat to the U.S.[1] Last summer, David Osias, the CIA's National Intelligence Officer for strategic programs, testified that Russia's control over its vast arsenal is endangered by political and military forces "it was not designed to withstand." At the same Senate Foreign Relations Committee hearing, Bruce Blair, a Brookings Institution analyst of the command and control of nuclear weapons, testified that "the world remains unsafe as long as there are thousands of launch-ready weapons at the fingertips of a Russian command system that is tottering on the edge of civil collapse."[2]

Since these hearings, Russia has continued its retrenchment toward Cold War positions in rhetoric and substance. In December 1995, free elections put the Russian parliament in the hands of Communists and hard-line nationalists—a trend away from the reform movement that is continuing in the run-up to this June's presidential elections and that is likely to intensify thereafter, no matter who wins. Evidence of this trend is to be found in the replacement in January 1996 of Foreign Minister Andrei Kozyrev by a former KGB official, Yevgeny Primakov. This step signaled a further revival of Cold War attitudes and foreshadowed a resuscitation of the Kremlin's close ties with dangerous regimes in the Middle East and East Asia. And in mid-March, the new Duma approved a resolution calling for the restoration of the Soviet Union.

1 Kerry Gildee, "Former CIA Chief Urges Caution on BMD Cooperation with Russia," *Defense Daily*, May 17, 1995, p. 239.

2 Rowan Scarborough, "Russia Losing Nuke Control, Senators Told: Atomic Smuggling Expected," *The Washington Times*, August 23, 1995.

Russia continues to violate arms control and other international agreements—a fact regrettably largely overlooked by the U.S. Senate, which endorsed START II under conditions that threaten to give new leverage to Moscow concerning the ABM Treaty and U.S. missile defense programs. This action is all the more remarkable in view of the fact that the Russian Duma is proving ever more unlikely to ratify START II.

In spite of its economic problems, Russia continues to modernize its land- and sea-based strategic rocket forces. President Yeltsin reportedly also has authorized some of the boldest submarine operations near American warships and off the U.S. coastlines since the end of the Cold War.[3] Moscow persists in aggressively marketing its intercontinental ballistic missiles (albeit in the guise of "space-launch vehicles") to developing nations eager to acquire these and other threatening technologies (notably, those related to chemical, biological, and nuclear weapons, advanced fighter aircraft, tanks, submarines, etc.).

CHINA

Over the past year, Communist China has demonstrated the prominent role likely to be accorded to ballistic missiles in the future as nations wield such systems as instruments of coercion and deterrence in instances short of actual use for military purposes. This was evident as China repeatedly threatened the 21 million inhabitants of Taiwan and, during July 1995 and again in March 1996, as Beijing launched a series of ballistic missiles into the waters off the Taiwanese coast.

China also implied that it was prepared to attack the United States with long-range missiles. This occurred when senior Chinese officials conveyed to the U.S. government their view that the U.S. would not dare to intervene on behalf of Taiwan because "American leaders care more about Los Angeles than they do about Taiwan." This dangerous situation has been exacerbated by the statements of senior Clinton Administration officials who have signaled that the U.S. would not necessarily defend Taiwan from a Chinese attack[4]—a pronouncement appallingly reminiscent of similar comments in 1950 by then-Secretary of State Dean Acheson to the effect that South Korea was not a vital American interest.[5] Within five months, the United States was in a war that would cost nearly 38,000 American lives.

China continues to modernize its military forces, including long-range missiles that can directly threaten the U.S. homeland. And while the Clinton Administration remains reluctant to confront China's autocratic rulers with meaningful punitive measures—as explicitly required by U.S. law—China has continued to violate its international agreements and has sold or otherwise transferred missile and/or weapons of mass destruction technology to numerous states, including Iran, Iraq, and Pakistan, adding instability to both regional and worldwide relationships important to U.S. security.[6] Even the *Washington Post* has described the Clinton Administration's China policy as being "at the edge of incoherence."

3 Stewart M. Powell, "Russian Subs Are Expected Off Coast: Show by Yeltsin Is for Parliament," *The Washington Times*, April 8, 1996.

4 See for example, the February 7, 1996, News—World-Wide section of *The Wall Street Journal*, p. 1, which reports that "Defense Secretary Perry said he doesn't see any immediate prospects of hostilities between China and Taiwan, but added the U.S. is unwilling to say whether it would defend Taiwan from an attack." That same day *The New York Times* ("Perry Voices Concern for Taiwan") reported Perry also said that, last November, Beijing asked Assistant Secretary of Defense Joseph Nye how Washington would respond if Taiwan were threatened, and Mr. Nye answered "that the response would depend on the circumstances."

5 This textbook case of how war can start by sliding over the threat and not stating what the price might be to the aggressor was reviewed recently in the context of the Clinton Administration's ambiguous China policies by A.M. Rosenthal, "The Words Not Spoken," *The New York Times*, February 2, 1996, p. A13.

6 For examples, see Bill Gertz, "Administration Weighs Sanctions Over Nuclear Sale," *The Washington Times*,

ROGUE STATES

Although little new data are available bearing on the threat from the so-called rogue states, the U.S. intelligence community has softened its threat projections from last year, when it was reported that North Korea might threaten U.S. territory in as early as three to five years—or less if they chose to "foreshorten" their development programs.[8] On January 18, 1996, Senator Jon Kyl (R-AZ) reported to an AIAA Conference in Monterey, California that the intelligence community now assesses the probability that a North Korean ICBM will be operational by the year 2000 as "very low" and that it is extremely unlikely that any nation with ICBMs will be willing to sell them.[9] These new projections—which analyze only the threat to the continental U.S., leaving out Hawaii and Alaska, and do not take into account means other than indigenous production by which a state might develop ballistic missiles—are being used as justification to curtail and delay programs to build ballistic missile defenses capable of protecting the American people.

Whether or not, as some believe, the intelligence community's change is politically motivated by an Administration more intent on defending an arms control treaty than on protecting the American people,[10] Team B regards it as extremely imprudent to rely on such optimistic threat projections. Consider the following partial listing of the historical basis for this sort of skepticism:

- ☞ **In the years following the Second World War,** official U.S. government projections overestimated by a matter of years the time it would take the Soviet Union to develop a fission, and later a fusion, device.

- ☞ **In early 1954,** a committee of eminent scientists and engineers (the Tea Pot Committee) challenged the then-prevailing intelligence assessment that the Soviet Union was not ahead of the U.S. in developing operational ICBMs. The Tea Pot Committee was subsequently proved right and the intelligence community proved wrong when, in 1957, the Soviets demonstrated ICBM capabilities by placing Sputnik into orbit.

- ☞ **The prelude, conduct, and aftermath of the Gulf War** clearly demonstrate the potential folly of not recognizing and addressing a threat before it is too late to do so. As reported in last year's Team B report, Iraq tested a rocket booster with potential intercontinental range in 1990, only months after the intelligence community discovered Baghdad was building the booster. After the war, in 1991, inspectors discovered a massive covert nuclear weapons development program, then judged to be within 18 months of providing Iraq with a deliverable nuclear weapon. This would have been far sooner than the intelligence community had believed possible before the war. It had been concealed success-

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February 9, 1996, p. A7, and "Pentagon Began Seeking Sanctions on China Months Ago," *The Washington Times*, February 10, 1996, p. A6.

7 Editorial," China's Nuclear Exports," *The Washington Post*, February 9, 1996, p. A18.

8 As reported in last year's Team B report, this intelligence community judgment was made public in "Senate Intelligence Community Releases Unclassified Intelligence Assessments," *Senate Select Committee on Intelligence News Release*, May 1, 1995, p. 1.

9 Senator Kyl stated that the CIA's Director of Congressional Affairs revealed in a December 1 letter to the Senate Intelligence Committee that the threat developments in North Korea had been "overstated"—contradicting earlier testimony by former Acting CIA Director Admiral William Studeman and current CIA Director John Deutch.

10 Senator Kyl and Representative Curt Weldon (R-PA) have led congressional efforts to probe the possible political manipulation of the intelligence information/analysis that led to this reassessment.

fully from the International Atomic Energy Agency (IAEA) thanks to an Iraqi who had been trained in how to do so during his service as an IAEA inspector.

Last August, Baghdad released new information (presumably to preempt data it feared would be provided by two defecting sons-in-law of Saddam Hussein) indicating that Iraq had launched a crash program to test a nuclear weapon in April 1991.[11] This came as a revelation even though the most intrusive post-war inspection regime one could imagine imposing on a sovereign state had been in place for nearly three and one-half years.

Saddam Hussein continues to develop longer-range missiles. U.N. inspectors recently expressed concern about their discovery that Iraq's ongoing efforts to build a 2000-mile-range missile that could threaten European capitals, including Moscow, were "more extensive than previously thought."[12] Combined with Iraq's now well-documented chemical and biological weapons capabilities (to say nothing of Iraq's efforts to build nuclear weapons mentioned above), such missiles could be used to blackmail Western nations. As noted in last year's Team B report, if Saddam Hussein had possessed such a missile in the Gulf War, it is doubtful that President Bush could have put together the allied coalition that restored Kuwait's freedom and protected vital Western interests in the Gulf. This recent U.N. finding clearly emphasizes the need to build wide-area defenses like those the Clinton Administration has canceled or is currently delaying for years.

Former CIA Director Woolsey is also skeptical of the assertion that threats from rogue states equipped with ballistic missiles are years away. In recent congressional testimony, Mr. Woolsey charged that the current government estimates about the ballistic missile threat are too optimistic.[13] He also has written that "the Administration is not giving this growing problem the weight that it deserves," and that "the Administration's defense budget for 1997 unwisely delays and cuts the funding for both the theater and national ballistic missile defense programs that Congress called for."[14]

In short, Team B takes no comfort whatsoever in the intelligence community's current optimism — or in the Clinton Administration's political spin on that judgment—that it will be able to detect indigenous missile development programs capable of threatening the continental U.S. in time for the United States to develop and deploy effective defenses. Furthermore, as Mr. Woolsey repeatedly has noted, rogue states can "short cut" the indigenous development time by purchasing entire missiles, missile components, supporting technology, and know-how.[15] As mentioned above, Russia and China are both willing partners for those interested in such a short-cut strategy. As Representative Curt Weldon has argued, it is not at all far-fetched to worry that within three years Russian SS-25 ICBMs, being marketed as "space launch vehicles," could end up in a "Third World nation with the right amount of money," given the present unstable political situation in Russia.[16]

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11 See Barbara Crossette, "Crash Nuclear Program by Iraq Is Disclosed," *The New York Times*, August 26, 1995; "Planned Iraqi Nuke Test Prevented by Gulf War," *The Washington Times*, August 26, 1995; and R. Jeffrey Smith, "U.N. Says Iraqis Prepared Germ Weapons in Gulf War," *The Washington Post*, August 26, 1995.

12 Stewart Stogel, "Missile Plans by Iraq May Aim at Europe," *The Washington Times*, February 16, 1996, p. A1.

13 See "Report on Missile Threat to U.S. Too Optimistic, Woolsey Charges," *The Washington Times*, March 15, 1996.

14 From "Missile Blackmail Exists Today," *The Wall Street Journal*, April 8, 1996.

15 See, for example, Mr. Woolsey's testimony before the International Security, International Organizations and Human Rights Subcommittee of the House Foreign Affairs Committee, July 28, 1993. Mr. Woolsey also has testified recently on the increasing threat posed by the proliferation of ballistic missiles, excerpts of which appeared in the April 8, 1996, edition of the *Wall Street Journal*.

16 "Rep. Curt Weldon Outlines Ballistic Missile Plans," *Defense Week*, April 10, 1995.

Team B's conclusion from last year stands: There is a clear, present, and growing threat of ballistic missiles of all ranges armed with weapons of mass destruction—a threat that demands an urgent response to protect Americans at home and American interests abroad.

Appendix B

ABM TREATY DEVELOPMENTS

Events of the past year have reinforced Team B's view that continued U.S. adherence to the real and unilaterally interpreted restraints of the ABM Treaty is unacceptably interfering with America's ability to defend itself and its allies from the growing threat of ballistic missile attack.

As was discussed in detail in last year's report, no effective defense of the American people can be built consistent with the ABM Treaty's existing terms. Furthermore, as was evident in the political debate that subsequently occurred, efforts to accommodate those who wish to adhere strictly to the Treaty's terms simply divert energy and precious resources from developing the most capable and cost-effective defenses possible.

Take, for example, initiatives launched over the past year on Capitol Hill in the hope that, by limiting a national missile defense system to the confines of the ABM Treaty, sufficient political support could be generated to allow its deployment to get underway. Such a system, by definition, would employ 1960s-vintage basing concepts and technologies and would not be capable of defending the entire United States against even the "several dozens" of warheads that Defense Secretary Perry recently acknowledged to be the size of the near-term threat to the U.S.[17] In the end, the compromises entailed in adopting such an approach allowed a Defense authorization bill mandating deployment of a Treaty-compliant system by 2003 to pass the Congress. Unfortunately, the legislation was vetoed by President Clinton. The bill ultimately signed by the President on February 10, 1996, contained neither the direction to deploy a Treaty-compliant program nor other key missile defense-related language.

The Clinton Administration also has rejected congressional advice with respect to the ABM Treaty itself. Rather than seek to relax its constraints—as repeatedly called for by the Congress over the past two years—the Clinton Administration has sought to make the Treaty *more restrictive*. For example, on May 10, 1995, Presidents Clinton and Yeltsin issued a Joint Summit Statement that outlined a series of principles which would guide the pursuit of ballistic missile defenses. The statement included a commitment to the ABM Treaty as the "cornerstone of strategic stability"; a pledge to limit the "number and geographic scope" of theater missile defense systems; and a prohibition on the deployment of theater missile defense systems which, for example, would not allow the U.S. to use theater missile defense systems against Russian theater ballistic missiles.

17 Perry made the comment in remarks before the Regional Commerce and Growth Association of St. Louis, Missouri, on September 28, 1995. Team B has no great argument with Secretary Perry's assessment that defenses are needed most immediately against several dozens of warheads—and notes that the Bush Administration was designing a global defense to defeat 100-200 attacking warheads. In fact, studies performed during the Bush Administration established that the deterrent value of the offensive forces of Russia would not be significantly degraded should the U.S. deploy such a limited defensive system.

Despite Clinton Administration claims that the Joint Summit Statement would serve as the basis for a positive resolution of the issue of distinguishing theater missile defense systems (which would not be subject to limitations) from strategic missile defense systems (which would be limited by the ABM Treaty), it instead spawned negotiations developing amendments to the Treaty that would significantly expand its scope. In the course of these negotiations, the Russians have become ever more insistent on imposing qualitative, quantitative, and geographical limitations on U.S. theater missile defenses. Regrettably, the Clinton Administration has tried assiduously to accommodate these Russian demands.

For instance, on June 22, 1995, the U.S. offered a proposal intended to meet key Russian demands. The Russians promptly rejected this proposal on the grounds that it did not go far enough. Specifically, Russia objected to an element of the proposal that would allow the U.S. to determine the compliance of its own high-speed theater missile defense systems (including the Navy's Upper-Tier System) using standards which have been in place since the establishment of the ABM Treaty.

On November 17, 1995, Undersecretary of State Lynn Davis and Russian Deputy Foreign Minister Georgy Mamedov negotiated a "framework agreement" allowing theater missile defense systems only under certain constraints. This agreement adjusted the June 22 U.S. proposal by omitting the acceptability of developing high-speed systems, including Navy Upper-Tier. During December 1995, a meeting of the Standing Consultative Commission (SCC)—a bilateral committee established to discuss matters pertaining to the ABM Treaty—was held in order to work toward codifying the Davis/Mamedov agreement. This provoked a strong reaction from key Members of Congress who vowed to roll back the deal.

In February 1996, Russia increased its pressure on the Administration to conclude an agreement quickly. Russia's new hard-line Foreign Minister Yevgeny Primakov told Secretary Christopher that unless an agreement is reached, Russia will not ratify the START II Treaty, prompting the Administration to rush to complete the agreement in a hastily assembled meeting of the SCC. This prompted a strong congressional reaction in the form of an unusual joint House-Senate letter in which House Speaker Newt Gingrich (R-GA), Senate Majority Leader Bob Dole (R-KS), and 12 other congressional leaders stated that they "remain opposed to any efforts that would put strict and unnecessary limits on the capabilities of our current theater missile defense systems."

It is noteworthy that the Administration's proposals that would limit the development of theater missile defense systems were pursued *over the objections of the Joint Chiefs of Staff*. During his September 21, 1995, confirmation hearings for his second term as Chairman of the Joint Chiefs, General John Shalikashvili stated that he disagreed with accepting performance limitations such as those that later would be contained in the Davis/Mamedov agreement, but that he had been overruled.

In addition to expanding the scope of the ABM Treaty, the Administration is determined to "multilateralize" it to include Russia, Ukraine, Belarus, and Kazakhstan. At this writing, only Russian intransigence prohibits the completion of a very ill-advised and counterproductive agreement.[18] Incredibly, the Clinton Administration has yet to signal that it intends to submit

18 The erosion of the Administration's position has been followed closely by Bill Gertz of the *Washington Times*, as reported in "Missile Pact With Russia on Fast Track," January 31, 1995; "Deal With Russia Could Hamper Missile Defenses," December 4, 1995; and "Russia Uses One Treaty to Win Another; Anti-Missile Deal May Be Rushed," March 25, 1996. The current deal reportedly under consideration would severely limit the development of the Navy's Upper-Tier system and the Army's Theater-High Altitude Area Defense (THAAD).

such an agreement—which would clearly amend the substance, form, and intent of the ABM Treaty—to the Senate for its advice and consent.

Henry Kissinger, principal architect of the ABM Treaty, has written that when the dangers of blackmail or accidents involving the threat or actual use of ballistic missiles to attack American cities are realized, "the refusal to have made timely provision [for defenses against these threats] will shake confidence in all institutions of government."[19] The danger for this democracy is particularly acute since, according to opinion research, most Americans are unaware that they are unprotected against missile attack. For all these reasons, it is imperative that prompt action be taken to put into place effective anti-missile defenses for the United States and for its forces and allies overseas.

19 Henry Kissinger, "Ready for Revitalizing," *The Washington Post*, March 9, 1995, p. A21.

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Mr. GAFFNEY. Thank you, sir—that there is an alternative that would permit this country to begin defending not only our forces and our allies overseas but also our people, for by our estimates on the order of $2 to $3 billion with the first assets, in this case, Navy vessels, brought on line in perhaps as little as 3 years, with fully 22 ships and 650 missiles available for these worldwide missile defense purposes in approximately 5 years. This approach is so manifestly sensible, so cost effective, so clearly doable, that it frankly astounds me that we have not even heard it discussed this morning in 3 or 4 hours worth of testimony, let alone have it addressed as a real alternative to what, according to Dr. Kaminski, is now the administration's preferred approach.

Let me just reprise the basic elements of it. It would take $5 to $7 billion, a rather significant level of uncertainty, but a very substantial sum either way, to buy 20 interceptors, which the Pentagon tells us would be reasonably likely to be able to intercept five incoming warheads. I have heard a lot about spending, you know, several billion dollars on an airplane. To spend $1 billion to defeat a warhead is a very high price to pay, especially when there are alternatives. I am not saying it is not justified if the alternative is to try to pick up the pieces after that warhead has obliterated an American city, but it does behoove us, especially after all of the breast beating we have heard here today about cost effectiveness and about husbanding our resources and about making sure that we are not investing in the wrong technologies; it behooves us to talk honestly about an alternative that could do far more for far more people for far less and I would argue far faster. So I would be very grateful if this could be made part of that record.

Let me just close by saying there are a couple of other points that jumped out at me from Dr. Kaminski's testimony that I think should not go unchallenged. One is his most fervent view seems to be that we must not make a mistake by deploying the wrong technology. And yet in response, in particular, to Congressman Hunter's very important line of inquiry, Dr. Kaminski again and again and again emphasized the important contribution being made today to a system that was clearly not adequate for the missile defense job it is currently being assigned, namely the Patriot missile. Now you cannot have it both ways. Either we are going to do what we have always done, and indeed what we have always done throughout the course of human history, which is take existing military tools and technologies and adapt them, or you can say we cannot do anything until we start with the perfect system.

Now, clearly nobody is going to take the second option. But when Dr. Kaminski talks about the Patriot missile, it absolutely undercuts his argument that he is using against you Congressman Weldon, Congressman Hunter, and others who recognize that we can make decisions today, get started with technology, improve it, evolve it, as the need arises.

A second point. Dr. Kaminski's logic seems to me illusive in describing to you, I think specifically, Congressman, his position on the UOES versus the objective system for THAAD. If I understood him correctly, he was saying that we are going to go forward. In fact, he is very proud he had money in to go forward with the on-time deployment or UOES deployment, if you will, of this prelimi-

nary system. But he is not prepared to say that we will be able to get the objective system on line by any particular time well certainly into the next decade. Now what I do not get is if he is satisfied that we have got a UOES system that is good enough for government work and we are going to put more money into getting it in the field and we are going to say that response to General Luck's requirement, how on earth can he turn around and say we are not going to get on with the other system, the other system is not ready to go; the other system will not be satisfactory?

I suggest to you that in this case the best is, as ever, the enemy of the good, and his approach on the UOES THAAD is the right one. Let us get into the field as soon as possible. It is bound to be better than the absolute nothing, which as a practical matter, we currently have against certainly chemical and biological warheads, submunitions, to say nothing of nuclear capabilities.

Finally, actually two further points, if I may. Quickly, the Secretary repeatedly asserted that technology was the driver. There were a couple quibbles about whether they had spent the money you gave them and so on. In fact, I am delighted to say, Congressman, that your effort to sue the President of the United States in order to get him to observe the law with respect to the THAAD Program and with respect to the Navy's wide area defense system is a very important initiative. It is a scandal that you have to do that, but it is an important initiative that shows that this administration is monkeying with these programs. It is not technology. In some cases, I am not even sure it is money. It is, I believe, a deliberate effort to dumb them down, slow them down, and prevent them from being deployed.

But I would just point out to you on one particular issue, and you and I have debated this in the past, I find it inconceivable frankly that if we were starting with a clean sheet of paper and our purpose was to deploy a national missile defense against even a limited threat on the fastest possible timeline with cost, of course, being a consideration, that what we would come up with on that piece of paper is the three-plus-three option. It, just on the face of it, it just does not add up, and indeed I think, as I am sure you will acknowledge, a big consideration, if not the preeminent consideration, for it is, we think we can juryrig a system that will conform to the limits of the ABM Treaty and at least get started so that we will have something, which, as I said, is better than nothing, but I think that is a proof positive demonstration of the extent to which considerations that have nothing to do with technology and really do not even have very much to do with cost when you are thinking about spending $5 to $7 billion to defend against five incoming warheads. It has to do with policy. It has to do with the ABM Treaty, and I think it is high time, as we have talked about, that be revisited.

Finally, a very important point that I hope you will get into carefully, Mr. Chairman. The Secretary repeatedly emphasized the role that deterrence has played, most especially in the context of Operation Desert Storm. I was very interested to read on the front page of the New York Times last Friday a report drawn from both firsthand anecdotal information of Desert Storm veterans, 150 of them, I believe, but also from declassified documents including an official

log of General Schwarzkopf's command, that Saddam Hussein's forces did, indeed, use chemical agents, possibly mustard, against American forces at Jubail in Saudi Arabia 3 days after the war began.

I have not heard the official response to this story by the administration, but it raises the fundamental question, which, I think, has not been given enough attention as it is, are we so sure—we understand how we will deter future threats? Are we so sure—we have just been debating, of course, in the Senate the Chemical Weapons Convention, which would make it illegal for the United States in the future ever to have an in-kind deterrent to chemical attack; Is that really prudent? Is it prudent to have no in-kind deterrent to biological weapons? Is it prudent to go into a comprehensive test ban that is going to make our nuclear deterrent, which is supposed to be the mother of all deterrents, if you will, credible for the long term?

I suggest to you it is incumbent upon this Congress, the next administration, to revisit the theories of deterrence that have become more and more—Keith Payne is an absolute world-class expert on this subject so I would defer to him on it, but I think the common wisdom that if we just have enough conventional capability that will suffice is no basis on which to rely especially if we are going to continue to defer the day when we build missile defenses that provide a hedge, an insurance policy, a safety margin, if you will, to the possibility which I suggest this report indicates is more than just a possibility, that our deterrence theories are not shared by the people we are interested in deterring. Thank you very much for your attention, Mr. Chairman.

[The prepared statement of Mr. Gaffney follows:]

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TESTIMONY OF FRANK J. GAFFNEY, JR.
Director, Center for Security Policy
before the
HOUSE NATIONAL SECURITY COMMITTEE
Washington, D.C.
27 September 1996

INEFFECTUAL ARMS CONTROL DEALS, MAKE-WORK MISSILE DEFENSE PROGRAMS ARE NO SUBSTITUTE FOR DEFENDING AMERICA

Chairman Hunter and Chairman Weldon, it is a distinct honor to be permitted to serve as a human bookend for the National Security Committee's deliberations this year. As I recall, the Committee opened its 1996 hearing cycle last February with a hearing on the missile defense issue in which my colleagues, Drs. William Graham and Keith Payne, and I were privileged to participate. Given the importance of correcting the United States' vulnerability to ballistic missile attack -- and the numerous developments that bear on our ability to do so that have taken place during the intervening months -- I am gratified that you have decided to close this legislative session with a return engagement by our panel.

I would like to use the limited time available today to make two specific points and then to reiterate the bottom-line I shared with the Committee six months ago.

A Penchant for Placebos

First, the Clinton Administration is pursuing *placebos* rather than effective responses to the real and growing threat posed by the proliferation of weapons of mass destruction -- and the ballistic missiles capable of delivering them over ever greater distances. **Evidently, the idea of promptly deploying effective anti-missile protection for the American people and their forces, allies and interests overseas is so repulsive to this Administration that it will use virtually any pretext to avoid doing so.** Consider the following examples:

The Targeting Flim-Flam

President Clinton has misled the public scores of times by declaring that "There are no Russian missiles pointed at America...." On some occasions, the President has even gone so far as to claim that "there is not a single, solitary nuclear missile pointed at an American child tonight. Not one. Not one. Not a single one."

These statements are either flatly wrong or simply unknowable. There is no reason to believe, for example, that Chinese missiles guidance systems have been reoriented away from American population centers or other targets. There is no way to be sure that the Russians have done so, either, even though Moscow promised it would in a bilateral agreement reached in 1994.

Even if the Russian weapons were aimed at the Broad Ocean Areas, however, J. Michael Waller pointed out in an op.ed. published in the *Washington Times* on

September 24th (which I would ask be inserted in the hearing record at this point) that Colonel-General Igor Sergeyev, commander-in-chief of Russia's Strategic Rocket Forces, has said publicly that his missiles can be given new targeting information "in a matter of minutes."

Dumbing Down the Threat Assessment

As this Committee is well aware, the Clinton Administration released late last year a National Intelligence Estimate (NIE) timed to coincide with an important debate on missile defenses in the U.S. Senate. This NIE claimed that there will be no threat of ballistic missile attack against the continental United States for at least fifteen years. Those conclusions have, in turn, been cited *ad nauseam* by opponents of ballistic missile defenses as evidence that a national missile defense is unnecessary.

As I testified last February, there is reason to believe that the assumptions upon which this NIE was based were driven by the Administration's determination not to build missile defenses rather than by a realistic assessment of the threat. Thanks to a request by Chairman Floyd Spence for an independent evaluation of this NIE, the General Accounting Office has now established there were indeed serious methodological and analytical flaws, not least of which was the failure to back up its central conclusion.

General O'Neill's Dissent: I would also remind the Committee that no less an authority than Lieutenant General Malcolm O'Neill, until recently the director of the Clinton Administration's Ballistic Missile Defense Organization, was highly critical of the NIE's misleading bottom-line. Before leaving office, he formally expressed his concerns to the intelligence community in a letter that made, among others, the following points:

- The NIE failed to take into account the effects of "intelligence gaps," i.e., covert missile development programs that are not detected by American intelligence.
- The NIE did not take into account that Hawaii and Alaska are part of the United States.
- The NIE's assumptions ruled out the possibility of what Gen. O'Neill has called "the wild card of technology transfer" -- foreign assistance used to simplify and accelerate a rogue state's acquisition of advanced ballistic missile capabilities.

As you surely know, the gravity of this "wild card" has been confirmed by an assessment performed by BMDO entitled, "The NIE on Emerging Missile Threats to North America: Comments, Assessments, Cautions." This study determined that there were a variety of ways in which missile-related technology could be acquired. Such ways include via: the Internet (including on-line Patent Office and NASA data and software); technical books, trade publications and newsletters, manuals and materials; the purchase of non-controlled components (including surplus rocket engines, roll control systems and test equipment); unclassified "short courses"; purchased space-launch vehicles, and clustering of short-range ballistic missiles.

The last option warrants the Committee's special attention insofar as Saddam Hussein clustered seven Scud missiles and stages together to create his satellite-launching Al Abbas missile. It was

tested in this mode only once, in December 1989. If successful in putting payloads into space, such a system could be used to deliver weapons over intercontinental distances.

In stark contrast to the NIE's pollyannish conclusion, the BMDO study judged that:

"The NIE did not consider the full spectrum of means for 'Rest of the World' (ROW) countries [i.e., developing nations other than Russia and China] to acquire long-range missile capability. The time that threat could materialize [in] is likely sooner than fifteen years. ROW design and operational requirements may be drastically different from Cold War paradigm. There is a need to revisit unconventional approaches in more detail (e.g., how much effort is involved in building a 'simplicity optimized' rocket)? [And] more literary search is necessary to determine how much [relevant] information is *uncontrolled*." (Emphasis added.)

Pursuing Unverifiable, Ineffectual Arms Control Agreements

Earlier this week, President Clinton reiterated his commitment to a number of arms control agreements that he claims would reduce the danger posed by weapons of mass destruction. These include: the Chemical Weapons Convention; the Comprehensive Test Ban; new verification arrangements for the Biological Weapons Convention; a fissile materials cut-off; further U.S.-Russian strategic arms reduction agreements; and giving "a stronger role and sharper teeth" to the Non-Proliferation Treaty's inspection agency, the IAEA. Unfortunately, the inherent unworkability, unverifiability and/or unenforceability of these initiatives ensure that they will not measurably reduce the proliferation of dangerous weaponry.

What these Clinton initiatives *will* do, however, is foster a false sense of security that will actually *increase* the danger facing our country. This has been the indisputable effect of the Biological Weapons Convention. Over the past two decades, the United States has largely neglected the need for research and development on biological defenses on the grounds that an "international norm" prohibits this form of warfare -- even though Russia, China and virtually every pariah state are believed to have aggressive biological warfare programs.

Just last year, we saw the same phenomenon with respect to chemical defensive investments. With the prospect of ratification of a new international norm "banning" chemical weapons, then-Vice Chairman of the Joint Chiefs of Staff William Owens tried to order an $800 million cut in the Future Years Defense Program for developing and acquiring protective equipment and related technology.

Finally, can there be any doubt that -- in the absence of the Anti-Ballistic Missile Treaty -- the United States would be confronting a world awash with potentially threatening ballistic missiles without any capability to intercept them? Just imagine, if the ABM Treaty were not already in place, the reception that would be given to someone trying to argue that it would be a good idea to leave the American people vulnerable to missile attacks that may in the not-too-distant future come from the likes of Iran, Iraq, North Korea, Libya or Syria!

Come to think of it, the absurdity of that argument may explain why the Clinton Administration is so adamant about not bringing the amendments that will alter the bilateral nature and significantly expand the scope of the ABM Treaty to the Senate for its advice and consent. If a two-thirds majority could not be mustered for the Chemical Weapons Convention, surely there would

not be sufficient support in the Senate for amendments that will have the effect of making it still harder to liberalize the ABM Treaty regime and will interfere with American efforts to build even effective *theater* missile defenses.

In this regard, I would like to take this opportunity to express profound appreciation to House Appropriations Committee Chairman Bob Livingston for his efforts to ensure that the Senate is given an opportunity to act on the Clinton amendments to the ABM Treaty. I strongly encourage members of this Committee to ensure that the Livingston amendment to the FY1997 Commerce, State and Justice Appropriations bill -- which would deny funding for the activities of the Standing Consultative Commission (SCC) or for the implementation of any new agreements or ABM Treaty amendments reached by the SCC until the President certifies that he will submit such agreements to the Senate for its advice and consent -- is included in the Omnibus Appropriations Bill.

Too Little To Show for Our Investment in Missile Defense

Not content with misleading the American people about the true nature of the threat from proliferating ballistic missiles and weapons of mass destruction, the Clinton Administration is sabotaging efforts to build effective missile defenses. It has done so through a variety of means, including the following:

The Administration has taken a number of programmatic actions, including some blatantly in violation of the law. In this connection, I commend members of this Committee for joining as plaintiffs in the missile defense-related lawsuit now pending in Federal Court. It is truly scandalous that such a step has to be taken to compel President Clinton and Secretary of Defense Perry to implement the legislative direction on the THAAD and Navy Upper Tier -- the Nation's two most promising near-term, wide-area missile defense programs -- pursuant to last year's defense authorization and appropriations bills.

The Clinton Administration has also effectively terminated all development work on boost-phase intercept technologies. And it has chosen to invest approximately $2 billion on the purchase of 2,000 Patriot PAC 3 interceptors -- a system that affords a better probability of kill than the versions deployed in Desert Storm but which will be able to provide no wider area defense than was the case five years ago. It is not clear that such an investment provides the sort of "bang for the buck" so urgently required by field commanders like General Gary Luck in Korea, who has appealed unsuccessfully to Joint Chiefs Chairman General John Shalikashvili for the most urgent deployment possible of THAAD missiles.

These programmatic actions are all the more reprehensible in light of revelations published last week on the front page of the *New York Times*. According to recently declassified documents and interviews with scores of Desert Storm veterans, the *Times* reports that Saddam Hussein used at least one Scud missile to deliver chemical weapons against American forces based near Jubail, Saudi Arabia on January 19, 1991 -- three days after the start of the Gulf War. The Clinton Administration appears to have gone to great lengths to conceal this fact (perhaps because its admission could further undermine the official case for the Chemical Weapons Convention).

By eliminating boost-phase defensive programs and wide-area theater defenses and by perpetuating for the indefinite future the U.S. military's current reliance on exceedingly limited

terminal defenses, it is inviting further -- and probably far more lethal -- attacks like that on Jubail.

Unfortunately, the same can be said of another Clinton Administration gambit for spending missile defense dollars in a manner that ensures we will continue to fail what Angelo Codevilla calls the "one missile test": the so-called "3-plus-3" plan for developing and -- at some point -- deploying national missile defenses. I believe this plan is simply a bait-and-switch operation, designed to provide political cover for a President determined not to field effective anti-missile systems but anxious to minimize the political liability that might be associated with such a stance.

For proof of the true nature of the 3-plus-3 initiative, one need look no further than the fact that this "crash program" lacks sufficient funds to develop the required interceptor booster, let alone pay for deployment within the stipulated six-year time-frame. The net result of this plan will be to leave the American people in the same posture they are in today -- absolutely vulnerable to an attack from even a single ballistic missile.

A Sound Alternative for Defending America: 'From the Sea'

Fortunately, we have an alternative. When I appeared before this Committee last February, I commended to your attention a study sponsored in 1995 by the Heritage Foundation. This blue-ribbon Missile Defense Study Team (known as "Team B") not only took strong exception to the sort of dumbed-down intelligence assessment on the ballistic missile threat that has been served up by the Clinton Administration. It also put forward a concrete, near-term and eminently affordable option for putting into place a national missile defense that will be able to provide robust wide-area defenses for our forces and allies overseas and begin to offer anti-missile protection to the people who happen to live in the "theater" we should care most about -- the United States of America.

This sea-based option would utilize the infrastructure deployed today as the Navy's AEGIS fleet air-defense system. For an additional investment of $2-3 billion spent over the next five years, it could begin deploying an internetted Upper Tier system within as little as three years; some 22 AEGIS ships could be fitted out in five-years' time. No other option promises to do as much, as fast for so little. I urge you to include the detailed discussion of the sea-based, wide-area defense contained in the updated version of the Team B report in the record of this hearing and that the Committee make it the focus of your first round of hearings next year.

Conclusion

In closing, I would simply say, there is really no question any longer that the United States will be defended against ballistic missile attack. In fact, I am certain that one part of that defense will be provided in the manner Team B recommended. The only question that remains to be answered is: Will the United States have a deployed anti-missile system before it needs one -- or *after*?

I earnestly hope that these hearings will assist this Committee in its efforts to ensure that steps are taken at once to begin deploying effective, world-wide missile defenses at once, so as to avoid the unnecessary and unpardonable loss of life and national treasure that will accompany building such a defense after we needed it.

Mr. WELDON. Thank you, Mr. Gaffney. As usual, it was a statement very much on the mark and as you know, I think, in 98 or 99 percent of the time we are in agreement. And I think where we disagree, it just may be something that a little different approach, but I appreciate your being here. Dr. Payne——

Mr. GAFFNEY. If I may, Mr. Chairman, as opposed to the disagreements that I think are not minor between me and Congressman Spratt, I agree with your assessment on that score.

Mr. WELDON. Thank you.

Dr. Payne.

STATEMENT OF DR. KEITH B. PAYNE, PRESIDENT, NATIONAL INSTITUTE FOR PUBLIC POLICY

Mr. PAYNE. Thank you, Mr. Chairman. It is a pleasure to be here this afternoon. What I would like to do is summarize my prepared statement and then submit the full statement for the record.

Mr. WELDON. Without objection.

Mr. PAYNE. Thank you, Mr. Chairman. What I would like to do over the next just very few minutes is address some of the questions that were raised early this morning including questions concerning the ABM Treaty and U.S. national missile defense and the value of deterrence. As you know, the United States-Soviet ABM Treaty, as amended in 1974, limits each party to a single NMD site. The treaty's constraints on NMD are severe and, in fact, there were meant to be so. There are some proposals current for deploying a single site NMD system, the intent frankly being to stress the treaty as little as possible.

And the specific potential capabilities of those single-site systems continue to be debated. Nevertheless, I think it is fair to say that the effectiveness of the current single-site NMD concepts even against a very constrained missile threat such as that posed by China, for example, will be suspect for the purpose of protecting American cities. Consequently, as long-range missile threats proliferate to rogue and terrorist states, we are going to be confronted by the dilemma of having very few options.

First, we can accept the risk of missile vulnerability to a variety of potential rogues and terrorists. Second, we can revise the ABM Treaty to provide for increased NMD capabilities, or third, we can withdraw from the ABM Treaty to provide for increased NMD capabilities. I cannot conceive of any other options. Those are going to be the three options we face, either accept our vulnerability or adjust the treaty so that we do not have to accept our vulnerability.

The first option of simply accepting our vulnerability to additional countries armed with missiles must been seen as completely unacceptable. Why? Because after studying the subject of deterrence theory and policy and actual historical practice for over two decades now, the only conclusion possible is that deterrence cannot be a reliable method for dealing with missile threats from rogues and terrorists in the future. Our cold war experience with deterrence does not provide any reasonable basis for confidence that deterrence will work predictably in the post-cold war period despite what we heard earlier this morning. And, if we cannot be confident that missile threats can be deterred, we must have the capability to defend against them.

Consequently, that leads us to the other two options to consider that I mentioned earlier. That is changing our commitment to the ABM Treaty through cooperative revision or withdrawal. With regard to the potential feasibility of cooperative treaty revision, I would like to summarize the pertinent findings of a 2-year Russian-American study in which I have participated. This study entitled "Proliferation, Counterproliferation and Missile Defense contains conclusions that I think are quite important to our consideration of the possible route to cooperative ABM Treaty revision."

The study identifies the potential for a position between two prominent views. The first view is that the necessary revision of the ABM Treaty should be easy because Russia faces a more severe missile threat than does the United States, and therefore should be eager to expand NMD. The second view is that cooperative treaty revision will be impossible because Russia will never waiver from its current opposition to United States NMD.

In contrast, the findings of our United States-Russian study suggest that cooperative ABM Treaty revision may be possible, but will require considerable effort by both the United States and Russia to change the context of the current debate. What I would like to do for just a minute or two is to draw directly from the study's very brief executive summary in presenting its conclusions. I should note, Mr. Chairman, that this executive summary has been approved by the Russian side in our study, including Dr. Kortunov, who was here earlier, and in fact, I would like to submit this brief executive summary for the record.

Mr. WELDON. Without objection.

[The information referred to was submitted for the record:]

PROLIFERATION, COUNTERPROLIFERATION & MISSILE DEFENSE

U.S. & RUSSIAN VIEWS ON COOPERATION

PREPARED BY
NATIONAL INSTITUTE FOR PUBLIC POLICY
MOSCOW BRANCH, RUSSIAN SCIENCE FOUNDATION

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Preface

This study originated in May 1994 as an initiative of the Russian Federation. Dr. Sergei Kortunov, Advisor to President Yeltsin's Assistant for National Security, discussed with Dr. Keith Payne, President of the National Institute For Public Policy, a desire for a bilateral project encompassing an unofficial Russian-American study of the potential for cooperation in the related areas of nonproliferation, missile defense and early warning. Following six months of preliminary discussions among the study's sponsors, and the designated co-directors of the project, Dr. Andrei Kortunov, Director of the Moscow Branch of Russian Science Foundation and Dr. Payne, the agreed goal was to establish U.S. and Russian Study Teams consisting primarily of non-governmental experts, and U.S. and Russian senior review groups to provide guidance and advice to the respective U.S. and Russian Study Teams.

The Study Teams were tasked first to compare U.S. and Russian views of proliferation, focusing most prominently on a comparison of the concerns raised by missile proliferation. Based on the identification of the similarities and differences in the U.S. and Russian Teams' respective views of missile proliferation, they were to examine the potential for Russian-American cooperation in the area of nonproliferation, and specifically the potential for cooperation in the areas of missile defense and early warning. Finally, the Study Teams were to examine the possible pathways and milestones toward a strategic relationship no longer based on the strategic deterrence concept popularly characterized as "mutual assured destruction" (MAD), and to identify the prominent features of a new strategic relationship.

The significance of this study effort follows from the importance for Russian-American relations of the issues that it is designed to assess. The United States sees the proliferation of missiles and weapons of mass destruction (WMD) as posing a security threat. As part of its counterproliferation agenda the United States will deploy theater missiles defenses, and has a "deployment readiness program" for national missile defense. In all of these areas the United States has expressed the

desire to work cooperatively with Russia. Russia considers proliferation a problem deserving attention, and similarly seeks to work cooperatively with the United States in addressing this concern. Nevertheless, there is some apparent friction in Russian and American views of the U.S. counterproliferation agenda and the related role of missile defense. This friction threatens to affect broader relations, including in the area of offensive force reductions. Consequently, this study—intended to help identify possible avenues by which Russian and American interests can be satisfied in a cooperative fashion—has the potential to provide unofficial yet expert commentary on one of the key areas in U.S.-Russian relations.

As the initial phase of this study the sponsors and Study Teams agreed to initiate three distinct but integrated taskings:

- *Task 1*: Assess the character of the threat presented by missile proliferation; identify the sources of that threat; and, compare the similarities and differences in each Team's perspectives on the threat.

- *Task 2*: Assess the value and role for various nonproliferation measures, including traditional multilateral diplomatic efforts, deterrence, and offensive and defensive military capabilities. Compare the similarities and differences in each Team's perspectives on the various nonproliferation measures.

- *Task 3*: Based on the findings of Tasks 2 and 3, assess the potential for Russian-American cooperation in the area of missile defense, focusing primarily on national missile defense (NMD).

The Study Teams were asked jointly to prepare a report and presentation of their findings on Tasks 1-3 before proceeding to the study's final topic, i.e., examining the possible pathways and milestones away from MAD and identifying the prominent features of a new strategic relationship.

This report, *Proliferation, Counterproliferation and Missile Defense: U.S. and Russian Views on Cooperation*, is the collected and integrated findings of the Study Teams' efforts under Tasks 1-3. It is divided into three main sections corresponding to the separate tasks. Each section is subdivided into three parts presenting: the views of the U.S. Study Team, the views of the Russian Study Team; and the similarities and differences in the respective views of the Teams.

Andrei Kortunov
Director
Russian Science Foundation

Keith B. Payne
President
National Institute for Public Policy

Executive Summary

Introduction

This study has brought together two teams of experts, one American and one Russian, to examine missile proliferation and assess the potential for a cooperative response to the problem, particularly focusing on missile defense. There are three parts to the study; each part contains separate assessments by the Russian and U.S. Teams and a joint section describing the similarities and differences in those perspectives. Task 1 focuses on general views of the missile proliferation problem. Task 2 examines Russian and U.S. views of the various options available for countering proliferation. Task 3 focuses on the potential for cooperation on ballistic missile defense (BMD) as a counterproliferation tool.

Task 1: Perspectives on Proliferation

U.S. Team Views: The U.S. Team views as a serious threat the spread of increasingly accurate, longer-range and more lethal ballistic and cruise missiles. North Korean missiles in development, potentially capable of striking U.S. territory if deployed, are evidence of this trend.

In the view of the U.S. Team, hostile regional powers have demonstrated an interest in acquiring the missile capability to threaten U.S. friends, allies and forces abroad. Many of these states recognize that the ability to threaten U.S. forces and eventually U.S. territory with missile strikes will give them the potential to deter or coerce the United States—and they are interested in acquiring such capability.

Russian Team Views: The Russian Team's view is that missile proliferation is not a "threat" *per se* but a less-urgent, potential "problem" for Russia. Still in the process of self-definition after the Soviet Union's collapse, Russia has an array of domestic challenges that affect its perception of proliferation—

proliferation being a relatively low priority. In addition, Russia's domestic focus means that Russia currently does not have the international roles, including global power projection, that drive the U.S. Team's assessment of threat. Some members of the Russian Team view the U.S. reaction to proliferation as posing more of a problem for Russian interests than does the process of proliferation itself.

Russia also is less able than the United States to arrive at a consensus position regarding missile proliferation because interests in Russia could be affected adversely by labeling a country a "threat" or a "rogue state" in accord with Western counterproliferation interests. Deliberately avoiding such labels can in fact be seen as a way of protecting Russia's domestic economic and political interests.

Team Similarities and Differences: There were some general similarities in the Teams' findings. Both Teams agreed that proliferation is a disturbing process that appears to be accelerating. Both also judged that Russian-American cooperation and a multifaceted response would be necessary to address proliferation.

However, the Teams differed on key points. They were unable to agree on the proliferant "threat" countries. For example, the U.S. identified Iran, Iraq, Libya, North Korea, and Syria as countries with both the capability and the intent to threaten U.S. interests. In contrast, the Russian Team did not identify any state as a "threat," preferring to cite "countries of concern." This may in part be the result of the wholly different geopolitical circumstances of Russia and the United States. Also, those countries cited as the focus of U.S. proliferation concerns, many of them former Soviet clients, are viewed as potential or actual partners and sources of revenue for the Russian Federation. Consequently, the view that Russia does not face a "threat" per se, is more easily understood. In addition, the notion that strict nonproliferation efforts will exact a relatively greater economic and political cost from Russia than from the United States explains some of the disparity in the Teams' assessments of the proliferation problem.

Task 2: Tools for Nonproliferation/Counterproliferation

U.S. Team Views: There is a spectrum of counterproliferation measures available to the United States. None alone is sufficient to address the threat. For example, the U.S. Team does not believe that deterrence will continue to

suffice as the primary guarantor of U.S. security against missile threats. The U.S. Team concluded that all the options available must be reviewed to determine their potential for addressing missile proliferation.

The U.S. Team reviewed the following options:

- *Nonmilitary*: This includes, for example, arms control, diplomacy and export controls. The Team concluded that these were important and should be reinforced where possible, but that they would not suffice to fully address the problem.

- *Deterrence*: Contrary to assumptions based on Cold War era experience, the U.S. Team concluded that while important, deterrence could not be counted on to pertain to all cases. In fact, it will be difficult to tell when and where deterrence will be effective in a future scenario.

- *Offensive Military*: This includes, for example, supply interdiction, preventive attack, preemptive attack, and wartime operations. The U.S. Team recognized that, as during the Cold War, there are significant political and diplomatic consequences for using offensive military force for counterproliferation purposes. Although useful in some cases, there are also practical limits on the effectiveness of offensive force to address the missile and weapons of mass destruction (WMD) threat.

- *Active Defense*: The U.S. Team noted that U.S. interests in BMD have changed to correspond to a limited missile proliferation threat. BMD may not be relevant in all scenarios, but could contribute to other forms of addressing the threat (e.g., deterrence) while providing a unique defensive capability should those other means fail.

The U.S. Team concludes that while traditional diplomatic nonproliferation and counterproliferation options remain important, all the identified options need to be available to adequately address the variety of potential scenarios involving missile threats.

Russian Team Views: The Russian Team concluded that Russia's view of nonproliferation and counterproliferation options is shaped in part by a range of internal priorities (e.g., economic concerns, potential for changes in government) and in part as a reaction to U.S. initiatives and thinking on the

subject. The Russian view incorporates a range of opinion, including the notion that U.S. interest in counterproliferation is intended largely to undermine and isolate Russia from its natural strategic partners and to secure U.S. military-technical superiority. However, the Russian Team notes that the dynamic nature of Russia's internal political situation means that views on this subject are clearly subject to change.

In discussing counterproliferation options, the Russian Team divided the set into "traditional" (diplomacy, Comprehensive Test Ban Treaty, etc.) and "active" categories (export controls, collective use of force, etc.). Both were subdivided into "peaceful" and "force related" options. In brief, the Russian Team vastly preferred multilateral diplomacy as the basis for addressing proliferation. With regard to force related options, the Russian Team concluded that nuclear deterrence of conventional attacks was increasingly incredible. The proposed solution was to internationalize the response to proliferation by creating norms for the use of force and emphasizing collective security options. Discussions of missile defense (which was noted to have significant drawbacks for stability) and offensive military force were placed in this international context as well.

Team Similarities and Differences: The Teams' views of nonproliferation/counterproliferation options coincided on a few general issues. The Teams understood that significant cooperation would be necessary to deal with proliferation credibly. They also acknowledged that all the tools discussed have, in some cases, a degree of utility. The Teams also clearly would prefer to use nonmilitary options to prevent proliferation, but recognize that this may not be feasible in all future scenarios.

Differences in the Russian and U.S. Teams' views largely built upon the differences identified in Task 1. For example, given Russia's perception of the lack of immediate threat, the Russian Team found the U.S. side too willing to pursue military-technical solutions which could be seen as a threat to Russian security and interests. The U.S. Team judged that the Russian Team's emphasis on internationalizing the response to counterproliferation was somewhat unrealistic; some on the U.S. Team thought this Russian focus was possibly intended less to address proliferation than to impede the U.S. counterproliferation initiative by placing it within an international framework. Because they view the threat differently, the Teams had different orders of priority with regard to counterproliferation tools, with the U.S. Team emphasizing the requirement for flexibility and all available counterproliferation measures, and the Russian Team focusing largely on multilateral diplomacy.

Task 3: Potential for Cooperation on Missile Defense for Counterproliferation

U.S. Team Views: As noted in Task 2, the U.S. is moving toward greater acceptance of missile defense as a necessary, if insufficient, response to proliferation. The U.S. Team documented the evolution of U.S. interest in BMD. U.S. interest in national missile defense (NMD), for example, has specifically shifted to a deployment readiness program for the purpose of providing the basis for a future move toward defenses against a very limited third party threat.

Because Russian officials regularly object to the prospect of U.S. NMD on the grounds of preserving strategic stability, the U.S. Team defined an approach to the limited NMD mission and demonstrated that such a capability need not undermine Russia's retaliatory deterrent even at reduced START II offensive force levels.

Based on this analysis, the U.S. Team concluded that Russian interest in maintaining an assured destruction capability (i.e., Russia's nuclear deterrent) can be compatible with a limited U.S. NMD for counterproliferation purposes. The U.S. Team recognized that in the future the sides must ultimately address strategic stability and mutual assured destruction, but in the near term, U.S. counterproliferation objectives could be accomplished within the antiballistic missile (ABM) Treaty framework, amended if necessary.

The U.S. Team also noted the possibility that cooperation in the area of BMD could facilitate broader forms of cooperation on counterproliferation, including early warning sharing, an international nonproliferation center, and joint military activity. Other forms of economic and industrial cooperation could be facilitated in the improved climate created by resolution of the near-term BMD issues.

Russian Team Views: While endorsing the goal of cooperation, in the current political context the Russian Team sees few specific incentives to agree to greater license in the area of NMD. Some members of the Russian Team view U.S. interest in BMD as an attempt to undermine the foundation of Russia's bilateral strategic deterrent relationship with the U.S. The Russian Team acknowledged that a limited NMD capability, in fact, need not endanger Russia's assured destruction retaliatory capability. However, for the Russian Team, the question is not whether a limited NMD itself would threaten deterrence stability; the danger to Russian security lies in the possible *process*

set into motion by agreeing to move toward NMD, including steps beyond the current terms of the ABM Treaty. Some members of the Russian Team conclude that this process, coupled with the potential for U.S. expansion of any limited NMD system, could ultimately erode the Russian deterrent and thus the existing basis for the bilateral strategic relationship. They question the proliferation rationale for U.S. interest in NMD, noting that U.S. intelligence agencies report publicly that there is no near-term threat to the United States. They conclude, therefore, that the actual motive for U.S. NMD interest is to challenge Russia's strategic position while "it is in a weakened position." These members of the Russian Team point to the cessation of the Ross-Mamedov Talks as indicative of the actual lack of U.S. interest in cooperation in this area.

The Russian Team also notes that the Clinton Administration, given its veto of the 1995 Missile Defense Act and its communications with Russian officials on this issue, intends to control enthusiasm for an immediate decision for NMD. Thus the Russian Team concludes that those in the U.S. Congress who argue that in the absence of Russian cooperation the U.S. could consider withdrawal from the ABM Treaty—and thereby seek to compel Russia to compromise and discuss ABM Treaty amendment—are "bluffing," and that Russia need not feel itself compelled to conciliate on these matters.

If posed as an ultimatum, the U.S. NMD agenda is unacceptable to Russia. The Russian Team emphasized, however, that U.S. interest in NMD may become more acceptable to Russia if it were imbedded within a broad array of cooperative and "reassuring" security-related activities. These include: early warning sharing; joint TMD programs; renewal of the Ross-Mamedov process; support for international mechanisms for dealing with proliferation; and joint nonproliferation activities where the U.S. treats Russia as a full partner. The Russian Team explained that without this sort of context and demonstration of respect for Russian security concerns, any change in the status quo on NMD would be seen by many in Moscow as detrimental to Russia.

Team Similarities and Differences: The similarities in the U.S. and Russian Teams' approaches to Task 3 are general and specific. Both Teams recognize that BMD can play a role in counterproliferation (albeit the nature of that role is perceived differently). Both understand that resolution of this issue is crucial to the future of bilateral relations, and that if attainable, a cooperative relationship would have a value beyond realm of counterproliferation. More specifically, the Teams agreed that limited NMD need not directly threaten mutual deterrence. They also mentioned many of the same cooperative activities (e.g., early warning sharing, a joint nonproliferation center) that

could create a more cooperative context in which outstanding BMD issues could be resolved.

In terms of general differences, the U.S. Team focused on addressing issues in quantifiable, technical terms while the Russian Team focused more on political process. Concern for that process is, in part, created by the Russian fear that the U.S. NMD agenda reflects an underlying intent to undermine Russian interests. This perspective extends to much of the U.S. counterproliferation agenda, which some on the Russian Team see as an overreaction and a potential threat to Russian interests.

From the U.S. Team's perspective, it is unclear precisely what concrete steps might be taken and how much progress in "reassurance" must occur, and in what areas, to alleviate Russian concerns regarding stability, status vis-à-vis the United States and Russian skepticism regarding U.S. intentions.

Conclusion: Despite these differences, the Teams both recognize a shared interest in a cooperative approach to addressing proliferation and the related U.S. move toward BMD. As a basis for resolving the friction over missile defense, it is important to note that both Teams identified roughly the same spectrum of cooperative activities as being the basis of a solution. Further, both Teams understand that our approach should contribute to the broader and longer-term objective of moving our bilateral relationship beyond the confines of MAD if a Russian-American strategic partnership is to be built. Our common interests have therefore clarified the next step to be taken and the tools to be used in that task: defining a more specific agenda for these cooperative, "reassuring" activities and describing how they can help satisfy both sides felt security needs, while moving the Russian-American relationship away from MAD.

Mr. PAYNE. Thank you. Our study brought together two teams of experts, one American and one Russian to examine missile proliferation and to assess the potential for cooperative response to the problem, and in particular we focused on missile defense. While endorsing the goal of United States-Russian strategic cooperation, in the current political context, the Russian team saw few specific incentives to agree on ABM Treaty revision and expanded NMD. Some members of the Russian team view United States interests in BMD as an attempt to undermine the foundation of Russia's deterrent.

The Russian team acknowledged that a limited NMD capability, in fact, need not endanger deterrent stability. However, for the Russian team, the question is not whether a limited NMD itself would threaten stability, the danger to Russian security, in their view, lies in the possible process set into motion were Russia to agree to move toward expanded NMD, including steps beyond the current terms of the ABM Treaty.

Some members of the Russian team concluded in this process or that this process coupled with the potential for rapid growth of any limited United States NMD system would, in fact, erode the Russian deterrent, and thus the existing basis for stability. They questioned the proliferation rationale for United States interest in NMD. In fact, interestingly enough, they noted specifically that United States intelligence agencies report publicly that there is no near-term threat; therefore, how could we possibly see proliferation as a threat? Therefore, our intentions are suspect.

They conclude, therefore, that the actual motive for United States NMD interest is to challenge Russia's strategic position while it is in a weakened state. These members of the Russian team point to the cessation of the Ross-Mamedov talks in 1993 as a reflection of the actual lack of United States interest in cooperation in this area. The Russian team also noted that the Clinton administration, given its veto in 1995 and its comments over the Missile Defense Act of 1995, in combination with its communication to Russian officials on the matter of NMD, they concluded that the Clinton administration intends to control enthusiasm for NMD. Thus, the Russian team concluded that those in the United States Congress who argue that in the absence of Russian cooperation the United States could consider withdrawal from the ABM Treaty, the Russian team judged that to be a bluff, and that Russia need not feel itself compelled to conciliate on these matters.

If posed as an ultimatum, the United States NMD agenda as a consequence is unacceptable to Russia. Nevertheless, the Russian team emphasized that United States interest in NMD could easily become quite acceptable to Russia if it were imbedded within a broad array of cooperative and reassuring security-related activities. These include early warning data sharing, joint TMD programs, renewal of the Ross-Mamedov process, and support for international mechanisms for dealing with proliferation and joint nonproliferation activities where the United States treats Russia as, in their terms, a full partner.

The Russian team explained that without this sort of context and demonstration of respect for Russian security concerns, any change in the status quo on NMD would be seen by many in Moscow as

detrimental to Russian security. In summary, with regard to the United States options of ABM Treaty revision or withdrawal, this Russian-American study suggests that there is potential for the option of cooperative ABM Treaty revision. Such revision will require considerable effort by both the United States and Russia. Specifically progress on cooperative revision will necessitate first placing the issue within a broader context of Russian-American cooperation. Russia has little motivation to work with us on this matter as an isolated event.

And second, it will require that Russia understand clearly how serious the United States is about ending its missile vulnerability, the related foreseeable need for national missile defense, and ABM Treaty revision. Russian experts at this point, by their own account, doubt United States sincerity and United States seriousness on this matter. And if our seriousness continues to be doubted, Russia will be quite willing to ignore our expressed desires. Russia will not solve our problem of vulnerability or our dilemma over the ABM Treaty for us, and we should not expect them to.

Finally, bringing new players into the ABM Treaty will render cooperative revision highly doubtful. Reconciling the conflicting interest of the United States and Russia in this regard is going to be challenging as we have learned in this 2-year study that we have just brought to fruition. Attempting to reconcile the conflicting interests of multiple parties for cooperative treaty revision would be an extraordinary task, to put it mildly. Consequently, I believe we should be very cautious about ABM Treaty succession, less it constitute a de facto barrier to any future treaty revision even assuming that the United States and Russia can concur on treaty revision. Thank you.

Mr. WELDON. Thank you, Dr. Payne.

[The prepared statement of Mr. Payne follows:]

The United States House of Representatives

House National Security Committee
Military Procurement and
Military Research and Development Subcommittees

Open Session

Testimony By:

Dr. Keith B. Payne

President, National Institute for Public Policy
Adjunct Professor, Georgetown University
National Security Studies Graduate Program

Cooperative Revision of the ABM Treaty?

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Cooperative Revision of the ABM Treaty?

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I would like to address some of the questions concerning the ABM Treaty and U.S. National Missile Defense (NMD). The U.S.-Soviet ABM Treaty, as amended in 1974, limits each party to a single NMD site with 100 interceptor launchers. The U.S. chose to deploy its NMD site at Grand Forks, North Dakota to protect offensive retaliatory forces, but deactivated that site soon after deployment. The Soviet Union chose to defend the Moscow region and maintains a Treaty-limited operational NMD site near Moscow.

The Treaty's constraints on NMD testing, development, and deployment are quite severe, and were intended to be so. There are some proposals for deploying a single-site NMD system, the intent being to stress the Treaty as little as possible. The specific potential capabilities of such a single-site system continue to be debated.

Nevertheless, I believe it is fair to say that the potential capability of the current single-site concepts, even against a very constrained missile threat such as that now posed by China, will be suspect. If anything beyond a trivial long-range missile threat emerges over the coming years, a single-site system is likely to be inadequate for the purpose of societal protection.

In this case, we will be confronted with the dilemma of very limited options: 1) accept the risk of missile vulnerability to a variety of potential rogue and terrorist states; 2) revise the ABM Treaty to provide for increased NMD capabilities; or 3) withdraw from the ABM Treaty to provide for increased NMD capabilities.

The first option of simply accepting our vulnerability to additional countries armed with missiles should be seen as completely unacceptable. Why? Because deterrence will not be a reliable method for dealing with missile threats from rogue and terrorist states in the future. Our Cold War experience with deterrence does not provide reasonable confidence that deterrence will work predictably in the post-Cold War period. And if we can not be confident that missile threats can be deterred, we must have the capability to defend.

Consequently, changing our commitment to the ABM Treaty—through cooperative revision or withdrawal—will be necessary. With regard to the question of cooperative revision or withdrawal from the ABM Treaty, I would like to summarize the pertinent findings of a two-year Russian-American study in which I participated as co-director. This study, entitled *Proliferation, Counterproliferation and Missile Defense*, contains conclusions very important to our consideration of the possible routes for cooperative ABM Treaty revision versus withdrawal.

The study identifies the potential for a position between two prominent current views: the first view is that necessary revision of the ABM Treaty should be easy because Russia faces a more severe missile threat than does the United States, and therefore should be eager to expand NMD; the second view is that cooperative Treaty revision is impossible because Russia will never waiver from its current opposition to U.S. NMD. In short, the findings of our U.S.-Russian study suggest that cooperative ABM Treaty revision may be possible, but will require considerable effort by both the United States and Russia to change the context of the current debate on the subject.

I would like to draw directly from the study's Executive Summary in presenting its conclusions.

Executive Summary: Proliferation, Counterproliferation and Missile Defense

This study has brought together two teams of experts, one American and one Russian, to examine missile proliferation and assess the potential for a cooperative response to the problem, particularly focusing on missile defense. There are three parts to the study; each part contains separate assessments by the Russian and U.S. Teams, followed by a joint section describing the similarities and differences in those perspectives. Task 1 focuses on general views of the missile proliferation problem. Task 2 examines Russian and U.S. views of the various options available for countering proliferation. Task 3 focuses on the potential for cooperation on ballistic missile defense (BMD) as a counterproliferation tool.

Task 1: Perspectives on Proliferation

U.S. Team Views: The U.S. Team views as a serious threat the spread of increasingly accurate, longer-range and more lethal ballistic and cruise missiles. North Korean missiles in development, potentially capable of striking U.S. territory if deployed, are evidence of this trend.

In the view of the U.S. Team, hostile regional powers have demonstrated an interest in acquiring the missile capability to threaten U.S. friends, allies and forces abroad. Many of these states recognize that the ability to threaten U.S. forces and eventually U.S. territory with missile strikes will

give them the potential to deter or coerce the United States—and they are interested in acquiring such capability.

Russian Team Views: The Russian Team's view is that missile proliferation is not a "threat" per se, but a less-urgent, potential "problem" for Russia. Still in the process of self-definition after the Soviet Union's collapse, Russia has an array of domestic challenges that affect its perception of proliferation—proliferation being a relatively low priority. In addition, Russia's domestic focus means that Russia currently does not have the international roles, including global power projection, that drive the U.S. Team's assessment of threat. Some members of the Russian Team view the U.S. reaction to proliferation as posing more of a problem for Russian interests than does the process of proliferation itself.

Russia also is less able than the United States to arrive at a consensus position regarding missile proliferation because interests in Russia could be affected adversely by labeling a country a "threat" or a "rogue state" in accord with Western counterproliferation interests. Deliberately avoiding such labels can in fact be seen as a way of protecting Russia's domestic economic and political interests.

Team Similarities and Differences: There were some general similarities in the Teams' findings. Both Teams agreed that proliferation is a disturbing process that appears to be accelerating. Both also judged that Russian-American cooperation and a multifaceted response would be necessary to address proliferation.

However, the Teams differed on key points. They were unable to agree on the proliferant "threat" countries. For example, the U.S. identified Iran, Iraq, Libya, North Korea, and Syria as countries with both the capability and the intent to threaten U.S. interests. In contrast, the Russian Team did not identify any state as a "threat," preferring to cite "countries of concern." This may in part be the result of the wholly different geopolitical circumstances of Russia and the United States. Also, those countries cited as the focus of U.S. proliferation concerns, many of them former Soviet clients, are viewed as potential or actual partners and sources of revenue for the Russian Federation. Consequently, the view that Russia does not face a "threat" per se, is more easily understood. In addition, the notion that strict nonproliferation efforts will exact a relatively greater economic and political cost from Russia than from the United States explains some of the disparity in the Teams' assessments of the proliferation problem.

Task 2: Tools for Nonproliferation/Counterproliferation

U.S. Team Views: There is a spectrum of counterproliferation measures available to the United States. None alone is sufficient to address the threat. For example, the U.S. Team does not believe that deterrence will

continue to suffice as the primary guarantor of U.S. security against missile threats. The U.S. Team concluded that all the options available must be reviewed to determine their potential for addressing missile proliferation.

The U.S. Team reviewed the following options:

- Nonmilitary: This includes, for example, arms control, diplomacy and export controls. The Team concluded that these were important and should be reinforced where possible, but that they would not suffice to fully address the problem.

- Deterrence: Contrary to assumptions based on Cold War era experience, the U.S. Team concluded that while important, deterrence could not be counted on to pertain to all cases. In fact, it will be difficult to tell when and where deterrence will be effective in a future scenario.

- Offensive Military: This includes, for example, supply interdiction, preventive attack, preemptive attack, and wartime operations. The U.S. Team recognized that, as during the Cold War, there are significant political and diplomatic consequences for using offensive military force for counterproliferation purposes. Although useful in some cases, there are also practical limits on the effectiveness of offensive force to address the missile and weapons of mass destruction (WMD) threat.

- Active Defense: The U.S. Team noted that U.S. interests in BMD have changed to correspond to a limited missile proliferation threat. BMD may not be relevant in all scenarios, but could contribute to other forms of addressing the threat (e.g., deterrence) while providing a unique defensive capability should those other means fail.

The U.S. Team concludes that while traditional diplomatic nonproliferation and counterproliferation options remain important, all the identified options need to be available to adequately address the variety of potential scenarios involving missile threats.

Russian Team Views: The Russian Team concluded that Russia's view of nonproliferation and counterproliferation options is shaped in part by a range of internal priorities (e.g., economic concerns, potential for changes in government) and in part as a reaction to U.S. initiatives and thinking on the subject. The Russian view incorporates a range of opinion, including the notion that U.S. interest in counterproliferation is intended largely to undermine and isolate Russia from its natural strategic partners and to secure U.S. military-technical superiority. However, the Russian Team notes that

the dynamic nature of Russia's internal political situation means that views on this subject are clearly subject to change.

In discussing counterproliferation options, the Russian Team divided the set into "traditional" (diplomacy, Comprehensive Test Ban Treaty, etc.) and "active" categories (export controls, collective use of force, etc.). Both were subdivided into "peaceful" and "force-related" options. In brief, the Russian Team vastly preferred multilateral diplomacy as the basis for addressing proliferation. With regard to force-related options, the Russian Team concluded that nuclear deterrence of conventional attacks was increasingly incredible. The proposed solution was to internationalize the response to proliferation by creating norms for the use of force and emphasizing collective security options. Discussions of missile defense (which was noted to have significant drawbacks for stability) and offensive military force were placed in this international context as well.

Team Similarities and Differences: The Teams' views of nonproliferation/counterproliferation options coincided on a few general issues. The Teams understood that significant cooperation would be necessary to deal with proliferation credibly. They also acknowledged that all the tools discussed have, in some cases, a degree of utility. The Teams also clearly would prefer to use nonmilitary options to prevent proliferation, but recognize that this may not be feasible in all future scenarios.

Differences in the Russian and U.S. Teams' views largely built upon the differences identified in Task 1. For example, given Russia's perception of the lack of immediate threat, the Russian Team found the U.S. side too willing to pursue military-technical solutions which could be seen as a threat to Russian security and interests. The U.S. Team judged that the Russian Team's emphasis on internationalizing the response to counterproliferation was somewhat unrealistic; some on the U.S. Team thought this Russian focus was possibly intended less to address proliferation than to impede the U.S. counterproliferation initiative by placing it within an international framework. Because they view the threat differently, the Teams had different orders of priority with regard to counterproliferation tools, with the U.S. Team emphasizing the requirement for flexibility and all available counterproliferation measures, and the Russian Team focusing largely on multilateral diplomacy.

Task 3: Potential for Cooperation on Missile Defense for Counterproliferation

U.S. Team Views: As noted in Task 2, the U.S. is moving toward greater acceptance of missile defense as a necessary, if insufficient, response to proliferation. The U.S. Team documented the evolution of U.S. interest in BMD. U.S. interest in national missile defense (NMD), for example, has specifically shifted to a deployment readiness program for the purpose of

providing the basis for a future move toward defenses against a very limited third party threat.

Because Russian officials regularly object to the prospect of U.S. NMD on the grounds of preserving strategic stability, the U.S. Team defined an approach to the limited NMD mission and demonstrated that such a capability need not undermine Russia's retaliatory deterrent even at reduced START II offensive force levels.

Based on this analysis, the U.S. Team concluded that Russian interest in maintaining an assured destruction capability (i.e., Russia's nuclear deterrent) can be compatible with a limited U.S. NMD for counterproliferation purposes. The U.S. Team recognized that in the future the sides must ultimately address strategic stability and mutual assured destruction, but in the near term, U.S. counterproliferation objectives could be accomplished within the antiballistic missile (ABM) Treaty framework, amended if necessary.

The U.S. Team also noted the possibility that cooperation in the area of BMD could facilitate broader forms of cooperation on counterproliferation, including early warning data sharing, an international nonproliferation center, and joint military activity. Other forms of economic and industrial cooperation could be facilitated in the improved climate created by resolution of the near-term BMD issues.

Russian Team Views: While endorsing the goal of cooperation, in the current political context the Russian Team sees few specific incentives to agree to greater license in the area of NMD. Some members of the Russian Team view U.S. interest in BMD as an attempt to undermine the foundation of Russia's bilateral strategic deterrent relationship with the U.S. The Russian Team acknowledged that a limited NMD capability, in fact, need not endanger Russia's assured destruction retaliatory capability. However, for the Russian Team, the question is not whether a limited NMD itself would threaten deterrence stability; the danger to Russian security lies in the possible process set into motion by agreeing to move toward NMD, including steps beyond the current terms of the ABM Treaty. Some members of the Russian Team conclude that this process, coupled with the potential for U.S. expansion of any limited NMD system, could ultimately erode the Russian deterrent and thus the existing basis for the bilateral strategic relationship. They question the proliferation rationale for U.S. interest in NMD, noting that U.S. intelligence agencies report publicly that there is no near-term threat to the United States. They conclude, therefore, that the actual motive for U.S. NMD interest is to challenge Russia's strategic position while "it is in a weakened position." These members of the Russian Team point to the cessation of the Ross-Mamedov Talks as indicative of the actual lack of U.S. interest in cooperation in this area.

The Russian Team also notes that the Clinton Administration, given its veto of the 1995 Missile Defense Act and its communications with Russian officials on this issue, intends to control enthusiasm for an immediate decision for NMD. Thus the Russian Team concludes that those in the U.S. Congress who argue that, in the absence of Russian cooperation, the U.S. could consider withdrawal from the ABM Treaty—and thereby seek to compel Russia to compromise and discuss ABM Treaty amendment—are "bluffing," and that Russia need not feel itself compelled to conciliate on these matters.

If posed as an ultimatum, the U.S. NMD agenda is unacceptable to Russia. The Russian Team emphasized, however, that U.S. interest in NMD may become more acceptable to Russia if it were imbedded within a broad array of cooperative and "reassuring" security-related activities. These include: early warning data sharing; joint TMD programs; renewal of the Ross-Mamedov process; support for international mechanisms for dealing with proliferation; and joint nonproliferation activities where the U.S. treats Russia as a full partner. The Russian Team explained that without this sort of context and demonstration of respect for Russian security concerns, any change in the status quo on NMD would be seen by many in Moscow as detrimental to Russia.

* * * * *

In summary, with regard to the U.S. options of ABM Treaty revision or withdrawal, this Russian-American study suggests that there is potential for the option of cooperative ABM Treaty revision. Such revision, however, will require considerable effort by both the United States and Russia.

Specifically, progress on cooperative revision will necessitate: First, placing the issue within a broader context of Russian-American cooperation. Russia has little motivation to work with us on this matter as an isolated event; and, second, it will require that Russia understand clearly how serious the United States is about missile vulnerability and the foreseeable need for NMD. If our seriousness is doubted, Russia will be quite willing to ignore our expressed desires—Russia will not solve our problem of missile vulnerability or our ABM Treaty dilemma for us.

Finally, bringing new players into the ABM Treaty will render cooperative revision highly doubtful. Reconciling the conflicting interests of the United States and Russia in this regard will be challenging. Attempting to reconcile the conflicting interests of multiple parties for cooperative Treaty revision would be an extraordinary task. Consequently, I believe we should be very cautious about ABM Treaty succession lest it constitute a de facto barrier to Treaty revision, even assuming U.S. and Russian concurrence on the subject.

Mr. WELDON. Mr. Codevilla.

STATEMENT OF ANGELO CODEVILLA, PROFESSOR, BOSTON UNIVERSITY

Mr. CODEVILLA. Thank you, Mr. Chairman. I ask your indulgence to submit a prepared testimony later on, having come on to this panel a bit late.

Mr. WELDON. Without objection.

Mr. CODEVILLA. I commend you for the topic of this hearing, which is an attempt to find out why so much money over so many years has produced precisely zero devices capable of intercepting zero missiles fired at the United States and, in fact, capable of only marginal capability to intercept missiles fired elsewhere.

Now we are not talking about merely the lack of deployed devices. We are talking about the lack of prototypes. The U.S. Congress does not now have the option or ordering a buy of any number of devices. These devices are not there to be bought. We do not even have prototypes. Now, this is not due to technical impossibility of the task, as Dr. Kaminski has argued. If it were technically impossible to do these things, we would have before us a record of valiant attempts and spectacular failures. It was technically on the edge of capability in the 1950's to place satellites in orbit and we saw American industry trying very hard to put up these satellites, and we saw these things crashing on the pad. We could be seeing any number of attempts to intercept missiles which were failures, but, in fact, we see no such things.

Prior to 1972, there were plenty of attempts to hit bullets with bullets. Of course, the interceptor bullets had nuclear weapons, but they worked. They were successful. Since then technology has become much, much better, but we have seen many fewer attempts to do this job. Nor is the lack of devices due to sloppy management. If it were a matter of simply sloppy management, there would be, at least, some devices around of indifferent quality. In fact, there are none. Over 19 years, over the 19 years that I have been observing the missile business, I have seen many programs with seductive titles. I have seen SDI. I have seen GPALS. I have forgotten most of the names. I have seen seductive titles on very, very good hardware programs.

Some of these programs were downright excellent technologically. I could pull up out of my memory literally dozens of excellent programs that were ready to yield antimissile devices. But none of them, not one, has actually come to fruition, not one. This shows a very, very certain single-minded efficiency in management. Management has managed to let not only of these devices, whether sensor or weapon, come through. So it is not that. Is it lack of money? Well, some $45 billion have been spent since I have been looking closely at antimissile programs. And what have we gotten for it? Well, I recall asking this question in an audience which included a former director of the SDIO. This gentleman began to wave around a document entitled "What We Got for $30 Billion," so I picked up the document, waved it around, and I said I see, we have a $30 billion missile swatter. We are going to use this thing to swat missiles.

In response to some of the testimony given this morning about having some really excellent and well-intentioned programs, I suggest that these well-intentioned programs cannot themselves knock down a single missile. I would not want to be protected by them. So how much money is enough? Well, last time I testified before this committee, Mr. Bennett asked me what I thought was the minimum amount that would be required to adequately fund SDI for that year. That year the administration was asking for some $4.5 billion. Mr. Bennett wanted to cut that to about $3 billion. I suggested that I would be delighted to see an authorization of about $1.5 billion, half of the amount that he suggested, on the one condition that the Congress add this little bit of language: that none of this money shall be available for any purpose but the purchase of antimissile prototype hardware whether it be sensor or weapon. Mr. Bennett was outraged at the suggestion and so, in fact, were many others.

The point is that every time such an amendment was proposed by friends of mine in the U.S. Senate, not only did the administration work against them, but, of course, all of the opponents of missile defense worked against them. There is a very, very strong bias against spending money to actually buy systems. So where is the money going? Well, it is going by definition anywhere and everywhere except to purchase defensive devices. So the question addressed by this subcommittee is most interesting and most deserving of an answer.

I suggest that your staff in the coming budget cycle address two areas of inquiry which would be relevant to this. In this hearing we can only suggest topics for further detailed investigation. The first is dilatory management, which has managed to turn work in the antimissile field into a technology hobby shop. Now I need not speak of the three-plus-three-plus-infinity program. I need not indict it as dilatory. Is it dilatory on its face. Its premise is we shall meet no threat before it is ready to overwhelm us, and its secondary premise is that we will know precisely 3 years ahead, or at least three years ahead, before the threat can overwhelm us.

I have been teaching political science for some 30 years, and I can assure you that one of the most universal phenomena in politics is the rapidity of change. Aristotle talked about it a long, long time ago. We do not have to argue with the CIA on these points.

Second, Congress has already identified some areas in which money has been handled in a dilatory fashion. For example, Congress has noted the dilatory handling of funds for SMTS. I can only suggest that the plan for competitive design at this stage in the development of SMTS is entirely dilatory and ought to be regarded as such. Note that I would suggest that the delay of THAAD and the suggested delay of THAAD and Upper Tier for the sake of a fly off is similarly dilatory and ought to be regarded as such. I suggest that Dr. Kaminski's contention that THAAD is not moving as fast as it should be because the last several tests have not been quite as successful as we might have wanted and that that is due simply to a shortage of technology which cannot be ameliorated by the targeting of funds is entirely off the mark. He, Dr. Kaminski, suggested that these tests have been held under absolutely the most ideal circumstances.

I assure you that they have not been held under ideal circumstances because they have been held under the prohibition of using external sensor data, that which makes it easiest for an interceptor, especially one that intercepts at the edges of the atmosphere or above the atmosphere, to do its job is precisely to have vector data as early as possible so that it can align itself most easily with the target. This kind of information has been withheld and therefore any suggestion that money be spent to alleviate a problem, that kind of problem, is clearly disingenuous. These are problems that we ourselves are creating for ourselves.

The practice of forcing programs to expend funds not on the basis of funds authorized by the Congress in any given year but rather on the basis of the POM is similar a dilatory practice. Thus, the Congress can authorize whatever it wants for Upper Tier or the space-based laser, but the DOD will allow expenditure in any given year only on the assumption that in the following year, the program will return to the funding profile that exists in the POM. Therefore, the money is not spent to go ahead and build the things that might be required to bring the program to completion but rather to buttress basic technology.

And one further example of this, in fiscal year 1996, the Congress authorized $80 million for the space-based laser and stated the clear intent that the demonstrated spacecraft should be built. But, in fact, only some 10 percent of those authorized funds were spent on anything having to do with the purpose of building the demonstrated spacecraft. The rest were used on either current experiments or—and really this is the most egregious thing—on expansion of activities in the location of the technology development. That is to say instead of building the infrastructure for testing the spacecraft and for designing the spacecraft, of course, they have spent the money on the old technology development facility.

So there are innumerable such instances that warrant your attention. I simply brought out a few here. I would strongly suggest that the staff begin to look at these programs one by one, weapon by weapon, and identify precisely those subelements of the programs which do contribute directly to the building of a prototype, those subelements that do not contribute to the building of the prototype, and simply restrict the authorization to those things which lead to the building of the prototype, period.

My second point is that the distinction between theater missile defense and national missile defense is based neither on technology nor on military factors. It is pseudolegal and it is the cause in and of itself of much of the waste that you see that I pointed to under my first category. I was struck by much of the testimony, in fact, by nearly all of the testimony, by the administration's witnesses today. It was a kind of fantasy island in which there are tactical missiles and strategic missiles in which the potency, the significance of a missile, the difficulty of interception of the missiles are determined by its range.

Mr. Chairman, this is sheer technical nonsense. It is sheer military nonsense. The amount of damage that a missile can do is not at all related to its range, and the difficulty of interception is only incidentally related to range. Speed has a lot to do with it, but speed, reentry speed is determined by ballistic coefficient. It is de-

termined also by the shape of the trajectory. There are missiles in the arsenals of rogue nations right now which can attain speeds far higher than the speeds that are stipulated in the recent United States-Russian agreement. Simply by making the trajectory higher, the missile can be fired, a long-range missile or a medium-range—a longer-range missile can be fired at shorter ranges and achieve speeds that can simply overwhelm the defenses that are crafted within the definition of TMD by the U.S. Government.

So my point here is that you must keep in mind the deforming optic of arms control, and that all of the positions concerning missile defense voiced this morning make sense only within that optic of arms control. The result of this is that things are being built under the rubric of theater missile defense which may benefit every theater in the world except one, the United States of America.

The difference between TMD device and a NMD device is that TMD devices are purposely built not to be as good as they can be. Often making a device worse is more difficult than making it better. Note the various prohibitions against THAAD's use of external sensor data, not that they have complicated the development program. Note that the statements by Dr. Kaminski this morning to the effect that the recent United States-Soviet agreement will not hamper the development of the Navy Upper Tier system are quite disingenuous because the point is that the administration is not allowing the transfer of data, is not planning for the transfer of data from SMTS to the launch control centers for Navy Upper Tier so that each individual interceptor might be launched simply on the basis of that external data.

The administration is demanding that the interceptors not be launched until the radar of the ship acquires the interceptor. This complicates not only use but it complicates the development. You should also note that one of the difficulties which most certainly will be faced by the test program of Navy Upper Tier will be caused by a certain myopia, what one might call myopia in the sensor. That is to say the sensor will not be able to see far enough out to line up with its target in due time. This is not a matter of technology. This is something that is being imposed on the sensor because of the desire to keep the sensor under the category of TMD.

Some time ago I asked an administration spokesman precisely why these things, these strictures, were put on, and the answer that I got was that if they were not, then each one of these systems would cease to be a TMD system and it would become an NMD system. That is to say it would become capable of handling the kind if missiles that would be shot at the United States. This, I think, is something that the Congress and the American people very much want. They very much want anything that is funded with their tax money to be able to protect them, and the question to be resolved is precisely what will the law demand? Will the law demand that these things be able to perform to the maximum the technology allows or will they not be able to?

This is also true, of course, in the case of when one compares the Nautilus laser which we are preparing for use in Israel.

Mr. WELDON. Dr. Codevilla, can I ask you if I could take—we have a vote on, and I have 3 minutes left.

Mr. CODEVILLA. I can finish up.

Mr. WELDON. I mean I can run over and vote if you all have schedules. I will come back because I have questions I would like to pose to you.

Mr. CODEVILLA. Well, let me finish here and then we can——

Mr. WELDON. I will pick up when I come back and let you finish.

Mr. CODEVILLA. OK. Very good.

Mr. WELDON. We will just take a recess. This is a vote and it will be a 5-minute vote after that. So there will be two quick votes but there is two minutes left so I should not be long. I will be right back.

Mr. CODEVILLA. Very well.

Mr. WELDON. I will recess until I can return from the two votes.

[Recess.]

Mr. WELDON. The subcommittee will reconvene. And we had left off with Dr. Codevilla finishing his testimony.

Mr. CODEVILLA. Mr. Chairman, let me summarize my last point and then move to my conclusion. My last point is quite simply that it is often more difficult to build a weapon in the dumbed-down way, a weapon that is less capable, capable only of defending against less capable threats, than it is to build one which has wider applications and which would defend the United States as well as allies. I was going to give as a final example the Nautilus laser which we are preparing for Israel, which is a very good thing, which we ought to do, but I must note that it is somewhat, in key respects somewhat more difficult to build than the space-based laser which would protect the United States and which Dr. Kaminski said is a matter of many, many years. Clearly it is not. If it is a matter of many, many years, it is because of policy decisions and certainly not because of technological reasons.

Now, my conclusion is quite simply that having listened to today's testimony and having looked at the record of the past 20 years, it is perfectly clear that if we continue to do business, if the Congress continues to do business more or less as it has for the past 20 years in missile defense, it is going to get more or less the same results that it has gotten for the past 20 years, namely not one single device. There are always going to be newer and better things down the road. There are always going to be improvements in technology. There are always going to be subterfuges that make the programs more expensive and make them yield later if at all.

So how would one go about doing business differently? It is the power of the Congress to specify how money is spent. And I would suggest doing precisely what I hinted at before, namely that once the staff has identified productive expenditures, that those productive expenditures be specified in law, and that within each program, a program office be constituted with the charter, with the legal charter, to bring, to produce, to turn out a prototype. I would suggest that it would be a good idea to separate the process of prototype production from the decision concerning deployment. These are two distinct things, and I suggest that unless prototypes are produced first, the discussions concerning deployment will be about abstract matters and that will not be terribly useful. Thank you, Mr. Chairman, for your attention. I would be delighted to answer any questions.

[The information referred to was not submitted for the record.]

Mr. WELDON. Thank you, Dr. Codevilla, and thank all three of you for coming in. Your statements were right on the mark as usual and we appreciate your indulging us with a time problem. We have extended this hearing. I can blame Duncan primarily because he took all that time that I was gone, I am sure, to lecture the entire audience. But the issue is certainly one that all of you have been involved in at a national level and we appreciate the role that each of you has played.

Dr. Gaffney, you talk about the slippage in terms of the UOES for the theater high altitude, the THAAD program, and now we see the administration talking about 2006 and I was down in Huntsville last week, and they are telling me that even there they could deploy probably 2004, 2003. We know the Navy has capability—you have documented that repeatedly—that could almost be even quicker than that, which I would ask you to respond to, but in the end it gets down to partially what Dr. Codevilla said: how do we force the administration? I mean you know it gets to the point where we put language in the bill that we think as reasonable people that they agree with, and in a good faith gentleman's agreement we are very specific in terms of dates and in terms of what we want and we even allow for them to give us their objections as I did when I was in the negotiations with Senator Lott and Senator Thurmond and Senator Sam Nunn and Bob Bell. And we again compromised, and to my feeling we compromised too far, but we had to get something that we felt was OK.

And then they went, the bill was passed, and they still ignored the provisions. So, Frank, do you have any suggestions or, Dr. Gaffney, do you have any suggestions on what we could do? I mean are there things we are not doing? I mean you know we are suing the administration right now over the dates. I do not know what else is legally and constitutionally available to us. And we are at wit's end. So I will start off over here and then, Angelo, I will come to you and, Keith, if you want to jump in, that is fine also. Frank.

Mr. GAFFNEY. I said before you came back, Mr. Chairman, that I think one of the important things that you are doing is keeping a spotlight on this issue, and I commend you for doing that. Your own indefatigable efforts to elevate the public debate about it, I think, is certainly not a sufficient condition but a necessary condition to corrective action here. I share your frustration. As I said earlier, I think it absolutely scandalous that the U.S. Congress' constitutional rights are being ignored by an executive branch that even before there is a line-item veto has decided how to pick and choose what it will adhere in terms of the law.

I think, as you know, Mr. Chairman, in the final analysis, my view is that one of two things will happen. Either we will have in the executive as well as in the legislative branch people who recognize that the United States simply cannot afford to be undefended against missile attack, in which case I think the sorts of issues and arguments that we have heard throughout the day today will really fade away. We will get on with building what we can build and we will improve it over time, as we do every other weapon system in the inventory. I hoped very much that 1996 would be a year of decision on that point. It has not been to my way of thinking as clearly focused, as visible an issue in the presidential campaign as it

should be. And I have got some ideas about that if you would care to hear them. But I think the alternatives to that—I very much regret saying this—is that we will do this the hard way. The bottom line is the same. The United States will be defended against missile attack. Of that there is no doubt. And in my view it will almost certainly be defended at least in part through the sea-based option that I talk about, simply because it is fast and cheap and straightforward, thanks to the $50 billion investment we have already made in the infrastructure.

But the hard way of doing this is not to put it into place until after some place we care about has been destroyed. If we are lucky it will be in some other country rather than here, but it will happen, and there is really no basis upon which to debate that. It is going to happen that someplace is going to be gassed or exposed to biological viruses or is going to be nuked. And I think it probably will be accompanied by a delivery system via ballistic missiles, and it will be so tragic because it is not only demonstrably the case that the least efficient way to do anything in the military or in any other sector is by throwing money at it in an emergency spending situation, but, of course, you will also have suffered the waste of lives and property and national treasure that will have been accompanied by this action.

So I wish I had a better answer for you than to say this ought to be a preeminent issue for the American people to focus on, to discuss, to decide, how they want to proceed, and that 1996 is not too soon an opportunity for us to have that decision. If in the event we miss this window, I am afraid we may be consigned for the reasons you have described, frustrating as they are, to the less attractive, the more painful, more costly alternative approach.

Mr. WELDON. Before I turn to Dr. Codevilla, perhaps what we need, and I think back to my pre-Congress days, and at that time I was a county commissioner and mayor of a small town, and there was a wave sweeping the country I guess it was called the nuclear freeze resolution, where they had States and entities pass nuclear freeze resolutions. Perhaps what we need to start is a referenda on the ballots that is very simple, as they made the nuclear freeze sound so simple: Do you want protection for your country against the potential of an incoming missile attack?

Mr. GAFFNEY. That is a great idea.

Mr. WELDON. And perhaps putting it that simple and then try to get that on every ballot in this country because I will guarantee you you know what the response of the American people is going to be.

Mr. GAFFNEY. Right.

Mr. WELDON. It is going to be overwhelming as the sessions you have run around the country have showed time and again.

Mr. GAFFNEY. Well, as you know, they already think it is there.

Mr. WELDON. Right.

Mr. GAFFNEY. The fact that you would have an initiative like this that would help educate them that it is not there would be a very salutary step. Could I make just one further point on that?

Mr. WELDON. Sure.

Mr. GAFFNEY. It has come to my attention that there is some thought being given to a resolution here in the Congress that

would have a similar kind of purpose that would simply say as we do not have a defense, it is the sense of Congress that every government, State, county, local government, ought to take steps in the nature of emergency planning to deal with the catastrophe that might befall them as a result of our vulnerability. That is another, maybe it is a complementary effort, but I think both of them are definitely worth pursuing.

Mr. WELDON. That is another interesting idea to pursue, and I would just say part of our educational effort in the next session, and you are well aware of this because you have met with us, is to get a citizen's advisory council going on missile defense and ultimately have a large-scale citizen's conference, probably in Washington, where we would invite journalists and editorial writers from around the country to come in and have a half-day or a full-day session on this issue, that would allow a full dialog to occur, but to have them be able to ask the questions directly to those policymakers here, and, as you know, I have enlisted the support of the Hollywood rock guitarist, Skunk Baxter, who is chairing that effort for me, and he is being extremely, extremely aggressive in that regard. Dr. Codevilla, did you want to respond also to the issue of how we force this issue?

Mr. CODEVILLA. Mr. Chairman, I think you are barking up the wrong tree. The American people do not have to be convinced. They, as you know very well, they already are. The problem is not them. The problem is and was the bureaucracy.

Mr. WELDON. And how do we force the bureaucracy?

Mr. CODEVILLA. Well, now, an old colleague of mine who taught American Government for many years has this little maxim regarding the balance of power within the U.S. Government. He says let us play Constitution. I will be Congress and I will win. Now the Congress can write authorizations in these terms: These funds shall be available only for, and it can specify. It can specify how a program is structured. You have said eloquently that you have written legislation on the assumption that you were dealing with honorable counterparts in the executive branch. I suggest that you might write that legislation on the opposite assumption: That you are dealing precisely with opponents who will use every last little bit of wiggle room to do precisely the opposite of what the law requires. That is not so terribly difficult to do.

As I say, you can zero out parts of programs. You can look at expenditures that are done under the, if you will pardon the expression, the aegis of a particular program but do not contribute to its fruition. You can strip down programs to their essentials and make sure that the money is spent only for those essentials, and then you can also work with those allies, and they do exist, within the bureaucracy who share your objectives, but again these things have to be done one-by-one, and in comparison with the method that Dr. Gaffney alludes to, the method that I am suggesting is really the easy way.

Mr. WELDON. Well, I understand what you are saying. And we have had this conversation before. The problem is that I think that kind of an action is doable in the House and we have done that. The problem is we have to deal with the other body, and the other body has 100 individuals who can stop anything at any time if they

so desire, and we have seen that happen. We saw it happen last year where the Senate had a majority that wanted to put some very specific things in the defense bill, and only because of one or two people, the entire process was held up to the extent that we did not get a conference report out until December, which was terribly watered down. So the difficulty we have is, in a perfect world, you are right, but in this world where we have to deal with the other body, where they have individuals who can stop individual initiatives, it is very difficult if not impossible.

Mr. CODEVILLA. I grew up, as it were, in the other body, Mr. Chairman, and I recognize the difficulties you are alluding to. That body is now under new leadership, and you may find them different.

Mr. WELDON. Well, they are different, different in a lot of ways, but they are different. But the problem is unless you have 60 votes to sustain a cloture vote, anyone can stop any issue. So I just should say to you I would like to write the language as tightly as we can, and we thought we had done that with last year's bill, and here we are in Federal court. Perhaps this will be the test case. Let me go on to some other issues.

Mr. CODEVILLA. This will—one more thing regarding tightness. I saw most recently a car for Father's Day. The first part of it showed a father holding up his son on a swing and saying hold on tight. The next frame shows the man holding up an empty swing and yelling tighter.

Mr. WELDON. I guess—I thank you for that analogy. Dr. Payne, in your comments, you raise an interesting point about your extensive work with the Russians, which you know I have applauded publicly many times and have worked with you and appreciate your efforts. And what you said is our own intelligence has been used against us by the Russians, which really kind of is troubling to me, and I would like you to comment on that because here we have our own intelligence which is supposed to be helping us understand the threat, and here we have the Russians coming in and saying, well, your own intelligence community is saying there is no threat, and using the data, and you also mentioned the stoppage of the Ross-Mamedov talks in 1993. Would you comment on why that was done and I agree with you that that type of high-level discussion should take place? Why did this administration, if it was this administration, end that high-level discussion which seemed to be under President Bush going in the right direction in terms of working together and cooperating with the Russians?

Mr. PAYNE. Well, the Ross-Mamedov talks, which were essentially a response to President Yeltsin's proposal for a global protection system, picked up in June 1992 and then really made amazing progress through October 1992. Why the Clinton administration did not resume the Ross-Mamedov talks after coming into power, I do not know the answer to that question. It is not clear that they were consciously ended, but they were not consciously restarted. And one of the points that the Russian team has made to us, in fact, at every level within the Russian team, was that they were deeply surprised and disappointed by the failure to resume the Ross-Mamedov talks, and that what they would like to see would be a resumption of them even now. And, in fact, an added point

they made was they saw the ending of those talks or the failure to resume them as an example of U.S. insincerity, as an example of the fact that the United States really is not interested in cooperating because we would take it to a certain point and then from their point of view, we terminated the process. So they saw it in very unpleasant terms.

Mr. WELDON. Has there ever been a public statement by the administration in terms of why they were not restarted? I mean I am not aware of it.

Mr. PAYNE. Not that I know of, no. With regard to the Russian comments on the NIE, they, in fact, made the comments several times, and they were quite consistent, where the point was made that how can we trust you that what you are really trying to pursue is a limited national missile defense system against proliferant states when your own intelligence community tells you that the threat is a long way off? And so they said, made the point that the only way we can interpret that is that your goal really is not to deal with the proliferation threat. Your goal is to deal with us and you are using this proliferation threat as an absolute smoke screen.

Mr. WELDON. In your dealings with the Russians, I know you have discussed this issue many times, and I would like you each perhaps to comment, but certainly start off with you, Dr. Payne. Is it your opinion that if we, in fact, make the final policy decision both administratively and legislatively to deploy a system, that that, in fact, would have a great impact on movement on the Russians' part to sit down and seriously bargain and negotiate, perhaps not just amendments to the ABM Treaty but possibly a new whatever it would be beyond the ABM Treaty, which I agree with Frank has outlived its usefulness and which is really not effective in this world where you no longer have two nations and two superpowers?

I had a briefing set up for members yesterday, classified and unclassified, on the threat from China, and it is absolutely astounding at what the Chinese are doing, and it is just something that is going to catch us very quickly and that we are not going to be prepared for. So if you look at China and then what North Korea is doing and the transfer of technology taking place, I mean is not a decision to deploy actually going to provide as much impetus not just to our own people that we are serious but also to the Russian side to move on this issue?

I mean let me put it this way, Dr. Payne. Are the Russians now basically saying, as you put it on this issue, thinking that we are bluffing, and we are not really serious and that three-plus-three is really three-plus-infinity and never going to be deployed?

Mr. PAYNE. They think the United States is bluffing in this regard and have indicated that when they see the United States as serious, and by that they mean exactly what you have just described, once they see a U.S. decision to move toward NMD, then they will believe that we are actually serious about that and that would have an extremely beneficial impact on our efforts to work with them jointly to revise the treaty or to do that with the treaty that needs to be done so that we can meet our requirements.

Mr. GAFFNEY. I would just add, Mr. Chairman, I think it is not only the case that it would have a therapeutic effect. I think it is

the case that if you do not do that, there is not a snowball's chance in hell you are ever going to get the latitude from the Russians to proceed in a useful way.

On the two points, Keith mentioned in his testimony that there is this problem with multilateralizing the treaty that will make any liberalization of its terms even more difficult than it is today. I would call to your attention, and I can get you the specific reference if you would like, but I believe it was about 3 years ago, that a newsletter published by the Arms Control Association quoted an anonymous but obviously identifiable Clinton administration official, who had briefed the Arms Control Association to the following effect: That one of the virtues of multilateralizing the ABM Treaty would be that it would have precisely the effect of inhibiting any future President from either getting out from under it or at least watering down its provisions.

I very strongly believe that you need to do two things. One, you need to identify a program and announce that that is what we are doing and we are going to get started with it posthaste. I have got a recommendation as to how you do that, but whether it is that approach or another, getting concrete, getting organized, and getting underway is crucial, as Keith says, to getting their attention. The second thing is I think you need to serve notice under the terms of the ABM Treaty. It is not often featured in these discussions that we have the right under the treaty to withdraw on 6-months notice.

I would very strongly recommend that the President be encouraged to serve notice and couple serving notice with the following straightforward and heartfelt announcement: We are prepared to collaborate with the Russians if they are willing to do so, to supplant this outdated and increasingly dangerous treaty with what you might call literally a modus vivendi, an agreement that provides for mutual survival instead of mutual destruction, and if at the end of 6 months we have come up with some an arrangement, to our mutual satisfaction, there is a successor to the ABM Treaty ready to go as it goes out the door.

Alternatively, however, and this is coming back to the stick, if we cannot come to a meeting of minds with the Russians within that 6-month period, we are going to go forward with the deployment of this program.

Mr. CODEVILLA. I could not agree more strongly with what he said. I would add only one thing. I spent a week with the national security community in Moscow this summer. I know that they are an awful lot of people there, too many, who still define the greatness of Russia in terms antagonistic to the United States and who huff and puff a great deal about the value of the ABM Treaty for them. It is my judgment, however, that these people do not have it in them to retaliate in any way against the United States should the United States simply serve notice of withdrawal from the treaty.

What they would do most certainly is to try to get the—the worst that they would do would be to try to get something for it. I think they would be satisfied by a variety of cooperative arrangements, not so much, I might add, because of the benefits that would accrue to Russia, but perhaps because of the benefits that might accrue

to themselves. They are very eager for the material benefits of cooperation.

Mr. WELDON. I understand the point, Dr. Codevilla, and may only concern is that we really have to understand the turmoil inside of Russia and the various factors there. I mean I have in front of me one of the Washington Times stories today where it is an AP story, and they are quoting General Lebed on the state of the Russian Armed Forces in the disarray it is in. And he says, and I quote, a mutiny may erupt this fall. I mean the situation in Russia, and I do not want to alarm the American people, but I mean here is General Lebed, who is the security adviser to Boris Yeltsin, who is talking about, and I guess this was in Moscow, talking about the problems in the Russian military. There was another story that documented in the CSIS report a number of specific instances where soldiers have not been paid, where armaments have been sold, where there are a number of things breaking down, but for him to say that yesterday I think shows the seriousness of the problem. And my concern is, and I have talked at length about this to Dr. Payne, that we do not do anything that could provoke some of the more radical elements in their military to do something that is extremely stupid, and that is to threaten us, either deliberately or accidentally. So that is my only concern in terms of making it appear as though we are provoking them.

I would like to send them a signal, and that is, yes, agree to a deployment policy statement, but also let them know, as I have tried to do, but we are also here to work with you during your tough times and to work with you in terms of this ABM Treaty that you think is so important to your security to convince you that it is in your best interests as well as ours to move away from mutually assured destruction and to move toward some new mindset in the world. That is my concern.

Mr. CODEVILLA. This is not a ploy on your part. This is sincerity itself, and I agree with it 100 percent. There is no reason, and there has never been any reason for United States-Russian enmity. Some Russians are willing to listen to that. Some at this point are not. But I suggest to you that in full agreement with what Dr. Gaffney has said, that once the United States is ready both with an openhanded offer and a firm determination to defend itself, the Russians will go along. I spoke with Arkativolski on this point and Arkativolski says why should it concern us if you are defended? So this is not a particularly, let us say, insignificant person in Russia.

Mr. WELDON. Do you want to respond?

Mr. PAYNE. Yes. What I would like to point out, I guess, is the other side of the coin of demonstrating our seriousness as a means of encouraging the Russian side to cooperate with us in the area of ABM Treaty revision and NMD. In fact, presenting the carrot, I think, is as important as presenting the stick.

Mr. CODEVILLA. Yeah.

Mr. PAYNE. It clearly is the Russian people are a very proud people. The leadership there is very proud, and I think if we just pursued the compellance part of this equation, we would probably be in for a rude surprise even if logically the Russian side should cooperate with us. That is why I focus both on the demonstration of our seriousness but this whole series of measures that have been

proposed by the Russian side for demonstrating that this is also a cooperative activity.

And let me just give you an example. In the discussions of the potential for cooperation and data sharing in the area of early warning, the Russian side in our group was absolutely sincere in saying that we have problems in our early warning network because of reasons of the dissolution of the Soviet Union and clearly we need some help here. Oh, and by the way, you might actually be able to benefit from us in this because our sensors might be able to help you with your NMD system vis-a-vis North Korea. And so what we have seen is a whole series of possible discussions with the Russian side where I think that the cooperative piece of it is as important as the compellance piece of it because if we pursue just one or the other, we are likely not to have a satisfactory result.

Mr. CODEVILLA. That is right.

Mr. WELDON. Frank, did you want to say something?

Mr. GAFFNEY. I think a refinement or a clarification, and I do not think Keith and I disagree about this, that the one problem with the cooperative part of this approach is the fact that if the Russians do not wish to cooperate, it can bind things up rather badly. So I think he is saying, and I certainly agree that it would desirable, if you can, to bring them along in a cooperative thing. I think we all are saying, and I think you have said as well, you need to be able to show them that you are prepared to go it alone if necessary, and I think if that is convincing, you will not only get cooperation where it is appropriate, you will also get a degree of cooperation on changing the arms control prism that Angelo so well described a moment ago through which we have been approaching and really hobbling missile defenses for so long.

Mr. PAYNE. Congressman, can I just make one last point?

Mr. WELDON. Sure, absolutely.

Mr. PAYNE. A follow-on to that. And that is the Russians have already demonstrated the fact that they would like to work with us on this. That is what the Global Protection System proposal was all about, and when the Russian side repeatedly says we would like to restart discussions on that, they are evidencing every, I think, sincere desire to begin the constructive side of the picture and the cooperative side of the picture. I do not have any doubt but what they would like to move in that direction and again demonstrating the United States seriousness about this is going to help us in that regard.

Mr. WELDON. I agree, and having worked with Russians for about 15, 20 years back and forth, the feeling I get is they respect you when you are honest and candid and upfront, which is why they ended up respecting Ronald Reagan so much. What they do not respect is uncertainty, lack of conviction, and lack of clarity in terms of what your ultimate goal is, and I think that is probably the best statement, I think, of why the concern is there right now in terms of our relationship.

I only have two other issues, and I know we have taken a lot of your time, that I would like to ask you to respond to and then I will be finished. If you want to make any closing comments after that, fine. One is, Dr. Payne, you have raised the issue and I agree that we need to look at this issue of the reliance on arms control

agreements and whether or not we need to find a new way of perhaps looking at the whole process of proliferation and controlling arms, and I know that Henry Sokolsky, who is a leader in the beltway here, has suggested that perhaps there might be some preliminary step. Maybe it should not be an all or nothing situation. Maybe there should be some flexibility given to the administration to only partially impose sanctions or whatever the case might be.

I just would like each of you, if you have any comments, to respond to what you think we can do, and I have been tough on the administration, as you heard me today, but I am willing to work with them, and are there some things that we should look at legislatively to perhaps make the control of arms proliferation perhaps easier to deal with and to allow us, I think, to be more what should I say—more coordinated or doing more logical in the way we enforce them. Now it is a hit or miss, and I mean from the tech transfer of the accelerometers to the M–11's to the ring magnets, there is just no consistency there, and I think that sends a terrible signal to the other signatory nations to arms control agreements with us that we do not know what the United States is going to do. Even though it is a part of the agreement, they probably will just waive the sanction or else they will say, well, we do not have enough evidence that it was a clear violation or we do not want to reveal our sources because that would then jeopardize the sources. Well, then, what good are the agreements?

So that whole issue—I would like to make this a key priority next session of Congress, and so I would like your thoughts on that, and the second issue, and, Angelo, this is an issue that you raise, and I want to know what specific other programs, if any, that we have dumbed down because of our limitations? And you discussed that relative to the external cuing relative to THAAD, and I would like to know if there are any other instances that any of you are aware of, and certainly since you raised it, of where perhaps we have dumbed down the potential capability of systems that have been underway for the last 15 years or even in more recent times. So whoever wants to start the response to those, those are my final two inquiries.

Mr. GAFFNEY. Maybe I could take a cut at the first one at least. I am delighted to hear of two of your priorities in there. I think they are closely related: the Chinese threat and trying to be more realistic about the proliferation issue. Let me make a couple of points, if I may, Mr. Chairman. In my testimony, I address at some length that I think, really insidious game that the administration is playing with the American people by pursuing what I call placebo arms control solutions, solutions to the proliferation problem.

We have just been very much involved in the past couple of weeks on the Senate's deliberations on the Chemical Weapons Convention, and in the final analysis, there were not the votes in the Senate to ratify it, and the administration asked that it be withdrawn from consideration for the time being. The reason fundamentally is, I think, well over the necessary one-third plus one of the Senate recognize that the treaty simply would not make a measurable, let alone significant, difference in the proliferation of chemical weaponry around the world.

Not only that, but it would have some very severe costs for the American troops facing an abiding and probably growing chemical threat and possibly for American industry to the tune of perhaps billions of dollars. Now, I mention that as an example because it is just one of a series of these ideas: the comprehensive test ban signed this week, a fissile material cutoff ban, still more draconian reductions in nuclear strategic forces including the elimination of warheads, and so on.

What you are seeing are utopian delusions that are being dressed up as credible responses to a serious problem that because they are unverifiable, because they are not global, and because they are not effective, may actually make the proliferation problem worse. So point one is I think that Congress needs to take a very hard look and I am glad that they started to last week over on the other side on these treaties.

A second point which comes to China—you are absolutely right. The absence of any effort to enforce even our own laws, let alone multilateral regimes, when countries like China flagrantly violate their commitments on proliferation, is if anything an invitation to more of that sort of behavior. It certainly is no disincentive. Having heard your high words of praise for Mr. Kaminski, I am a little hesitant to point this out, but in the course of your review of China, what it is becoming, and what our policies are toward it, I believe you must take a very hard look at the role that Secretary Perry, DCI Director Deutch and Under Secretary Kaminski have played in private life and now in Government in facilitating the transfer of technology relevant to weapons programs, if not weapons of mass destruction programs certainly other weapons programs, by the United States Government.

It makes it that much more difficult, of course, having done so, to complain about other people's sales of technology to the Chinese. But in particular to the extent that there is evidence that there is some really shady practice going on here as well, it is a rich area for your review, and I encourage you to do it. Finally, on that point——

Mr. WELDON. You might perhaps help us in reference to that.

Mr. GAFFNEY. Be happy to. There have been some very important general pieces written on the subject. Finally, there is an issue that is actually I gather in play in the Senate right now. You all had a hand in trying to improve a revision to the export, resuscitation of the Export Administration Act. Frankly, I was not happy with the product coming out of the House, but I gather there is an effort being made to take it up and to water it down even further in the Senate side. If you do nothing else, Mr. Chairman, but reengage this committee's energies on the role that strategic technology flows can have for our military defense requirements, let alone our commercial competitiveness, our defense budget is affected dramatically by the effects of these transfers, and in many cases, they are not being considered any longer, and if they are being considered, they are not being subjected to the scrutiny of what does this do to our defense needs and liabilities. Anyway, those are three points that I just think merit considerable attention on your part, and I salute you for strapping it on.

Mr. WELDON. Frank, I agree with you. Keith or Angelo?

Mr. PAYNE. I can take just a minute with regard to the issue of arms control and the value of arms control for nonproliferation. The first point is that we hear frequently or at least I hear frequently that the issue is either arms control or missile defense as if we can only pursue one at the same time. The real point to make is that it is not an either/or proposition. We should be pursuing both simultaneously. Arms control has a role to play and clearly missile defense has a role to play.

Unfortunately, the role that arms control might plan is going to be undermined. In fact, it will be worse than useless if there is no enforcement of the arms control agreements that we ultimately conclude, and it is worse than useless if there is no enforcement because the parties you are making agreements with will ultimately doubt your seriousness and make its own conclusions about your own weakness if you are not willing to enforce those arms control agreements that you have taken great pains to conclude.

And I can just give you one example from the recent press that pointed out that at the General Assembly meeting in Vienna of the IAEA, Hans Bullich made the point that North Korea is still refusing to implement the safeguards pact that we negotiated 2 years ago and that the international members of the international community including our allies were calling the situation deplorable and irresponsible. That kind of arms control, if, in fact, the North Koreans are not implementing the safeguards pact, as I said is worse than useless.

Mr. WELDON. You are absolutely right. We look forward to working with you both on that issue in the next session. Dr. Codevilla.

Mr. CODEVILLA. Let me just simply point out that the problem that Keith Payne mentioned is not an incidental problem. It is an essential problem inherent in arms control. Back in 1961 Freddie Clay wrote an article in Foreign Affairs entitled "After Detection What?" And the answer that he gave was nothing. And he gave all sorts of good reasons both from the nature of the workings of government, that is, that people who are involved in the arms control process have built a stake in the agreement, that the success of the agreement or the appearance of success of the agreements is identified with their success, and with the fact that enforcement is difficult, and that the admission that a treaty is not working is, in fact, a self-indictment.

All of those things, as I say, are not faults of a particular administration. They are faults, as I say, of essentially all administrations that deal with arms control. Arms control treaties are inherently very difficult. The second point was made by Senator Richard Russell way back in 1961, when he pointed out that it is very difficult to arm while disarming or to disarm while arming because it simply mixes the categories, mixes the intentions, and one winds up doing both things badly. I think that the testimony we got this morning concerning the way in which our antimissile programs are fitting in with the ABM Treaty is eloquent testimony to that. That is not a fixable problem.

The best thing that the Congress can do is to simply recognize that these are inherently incompatible approaches and that those who talk about safety through arms control really are principled opponents. They really do not want the United States to be de-

fended. They are mistaken. That is their position. They have a right to hold. But one should not confuse the issue. Making issues clear is the first task of statesmanship.

Regarding dumbing down, everyone of the programs that has been allowed to proceed to the point at which we find it today has been allowed to proceed because it has been dumbed down starting from the very top. The least dumbed down is the space-based laser, but it has been dumbed down by having been shrunk. The space-based laser that is now in progress, as it were, is a subscale model of the original proposed thing. It is not any easier to build than the larger thing, or at least not significantly. It is simply scaled down because of the treaty.

Now, as regards THAAD and Navy Upper Tier, which are the two serious programs before us, these are certified compliant with the ABM Treaty because they have been designed this way. It is not an accident that the sensor at the head of the Upper Tier interceptor is as insensitive as it is. It is as insensitive as it is because of treaty requirements so Dr. Kaminski might very well say, well, these things are not dumbed down. They are as they are. Yes, indeed, they are as they are. They have been designed as they are to be within a certain conception of the treaty. This is, as I say, an issue which should be investigated program by program. The question that the committee should ask is how good can this be? Not what is this program right now, but given the kind of technology involved, how good can this be? How good can this easily be without going into the exotic developments in technology which would take time, but given technology as it is and as it can be implemented in a short time, how good can this be? And then one can compare and see what, in fact, we have.

Mr. GAFFNEY. Can I add a thought on that, Mr. Chairman, because I think Angelo is on to something.

Mr. WELDON. Absolutely.

Mr. GAFFNEY. How good it can be, if I may come back to this proposal of using Navy Upper Tier systems to defend both our forces and allies overseas and to begin defending the American people, if you took what the administration is serving up, you would believe that these systems lack that inherent capability.

Mr. CODEVILLA. They do not.

Mr. GAFFNEY. They do not. And how good they can be to give them that capability does not require a major redesign of the system. To be sure, and this is just where I wanted to clarify Angelo's point. To be sure to optimize a sea-based anti-missile system to give it the maximum capability to defend the United States, you would do different things than you would do if you were simply taking the system now very grudgingly being allowed by the administration to move forward and give it as much capability as you can within its existing parameters. And on that point, I would just emphasize there was much talk today, particularly Congressman Spratt's line of questioning, about how poky the SMTS, son of Brilliant Eyes, low Earch orbiting, monitoring system, is. That system will, as was said by everybody, indisputably enhance the performance of every missile defense system we deploy.

It will, however, only enhance the theater missile defense systems to the extent we allow it to be used by them, which I suggest

to you will cause treaty problems unless we have dealt with the treaty.

Mr. WELDON. That is right.

Mr. GAFFNEY. But my other point is, and this is crucial to your deliberations, sir, this system need not become the pacing item to putting at sea a worldwide anti-missile system. Of course, as I say, it will be made more effective if it can use Brilliant Eyes type data. But if we simply allow these ships to internet their information, the forward deployed sensors, both airborne, seaborne, land-based, can pass on information that will make those systems usable, indeed useful to both theater and wide area defense of that theater, as Angelo calls it, that is the United States of America.

Mr. WELDON. You have made that point before, Frank, and you have made it again.

Mr. GAFFNEY. But I keep working it, sir.

Mr. WELDON. And you have made it very well again today, and it has not gone unnoticed. Are there any followup points you would like to make, Keith?

Mr. PAYNE. I would just like to make one last point and that is that today's hearing may have actually taken us a step toward an easing of the difficulties in cooperating with the Russians, and what I mean by that is a comment that Dr. Kortunov made to me before he had to leave, and I am sure that he would not mind me sharing it, where he said that the hearing that he saw today demonstrated to him that despite all the differences that were aired, that there were several points that came out in terms of a consensus both from the administration witnesses and from the Members of Congress, and that was that the missile defense that we are talking about really is oriented toward the proliferant states and not toward the Russian Federation. And he said he had to sit here and actually see it presented obviously very sincerely before he could be convinced of that. And he walked away saying now I understand what you are talking about.

Mr. WELDON. Well, that is perhaps the best result we can hope for, and I am very pleased to hear that because, in fact, I think that is the truth among the bulk of the Members on both sides of the aisle, and one of the things we proposed to the Russians is having Members of our Congress interact with their Duma. We have just agreed as a result of meetings I had last week with the chairman of the Duma defense committee and his No. 2 person here in Washington, that we have a regular annual exchange program back and forth twice a year, that we have frank discussions on systems, on NATO, on proliferation, on things that we hear. I raised the issue of the Sirokov document that Anton Sirokov briefed Paval Grachev, and unfortunately the response by the Russian chairman of the committee was I never heard of Anton Sirokov, and I do not know what you are talking about.

And I said, look, the one thing you have to understand, and he is, as you know, a retired four-star general, if we are going to have the ability to be frank and work together, you have got to be candid. I am not afraid to take on our military when they do something that I think oversteps the bounds. You have to be willing to tell us the truth and be up-front with us. You know we have a 20-some-page document that we have translated that Pavel Felgingour

and the media in Russia reported on this in Russian that it was written all over the country, and you are telling me he as chairman of the National Security Committee of the Duma that you have never heard of the document and never heard of this gentleman Anton Sirokov who briefed Paval Grachev? I said how can you sit here and say that?

So I think we have got some work to do, but I think we have got to approach it in the spirit that it is achievable and that kind of comment coming from an enlightened person like Kortunov is valid, and certainly I think sets the right tone as we conclude the last National Security hearing of the 104th Congress. We had a marathon these 2 years. I do not know the exact number, but it was almost 20 hearings, classified briefings, other sessions, on the issue of missile defense and the intelligence threat, and I would just conclude with this statement. Whoever is in the White House in January, and I obviously have my concerns, and you all have your own, but whoever is in, I will put them on notice, I will be back next year. Mark my word, and they will have to deal with me and our committee, and we will be more aggressive than we were this year in terms of getting the factual information to the American people. We do not want to scare people, but, on the other hand, we do not want to do what the President has done and paint this rosy picture that all of a sudden roses are coming up all over the former SS–25 site locations and the SS–18 locations.

And together we can accomplish that, and you three have made important contributions over the years in that debate far longer and before I got involved in this, and I applaud you for that, ask you to keep involved, and keep helping us educate the American people and perhaps even more importantly my colleagues in the Congress. Thank you all. The hearing now stands adjourned.

[Whereupon, at 4:05 p.m., the subcommittees adjourned.]

[The following questions and answers were submitted for the record:]

STATUS OF NATIONAL MISSILE DEFENSE PROGRAM

Mr. WELDON. The Department supports a so-called "3+3" program strategy (3 years of R&D followed by 3 years of actual production and deployment, if a deployment decision is made). Concerns have been raised, however, regarding the extent to which the Department supports its own program.

What amount of funds are required through the Future Years Defense Plan (FYDP) to implement the Department's so-called "3+3" NMD program strategy? (Note: Congress was briefed two years ago that the "3+3" strategy would require approximately $800M per year.)

Dr. KAMINSKI. Current NMD funding through the FYDP is sufficient to support the first three years of a minimal NMD development program. The goal of the first three years is to develop the NMD System sufficiently so that an Integrated System Demonstration can be conducted in 3QFY99. This demonstration combined with ground testing and a System Readiness Review will provide the data needed to make a deployment decision which could be implemented within three additional years to field an initial NMD capability. The "3+3" program previously briefed to Congress at the level of about $800M per year during the first three years was essentially the same as the current NMD program; the additional funding would significantly reduce technical and schedule risk.

Mr. WELDON. Has the Department budgeted the funds necessary to implement a deployment decision? Have funds for actual production and fielding been included in the FYDP? If not, why not?

Dr. KAMINSKI. No. Currently only development is funded in the FYDP. The Department will determine the cost of production and fielding over the next three years to provide funding in response to the threat.

Mr. WELDON. What is the status of the Department's plan to establish an NMD Joint Program Office?

Dr. KAMINSKI. The Department has completed the planning for the JPO. An organization has been designed and approved. The Services have been requested to nominate an 0–7 to serve as the Program Manager. The initial cadre of personnel to staff the JPO has been identified for transfer from BMDO. Additional slots will be staffed over time with personnel nominated by the services. A Memorandum of Understanding has been developed and signed by all of the Services. The plan had been to formally "stand-up" the JPO on September 9, 1996, but this was delayed at the request of the Chairman of the Senate Appropriations Committee.

Mr. WELDON. What are the reasons for establishing such an office?

Dr. KAMINSKI. The NMD program is comprised of a number of elements. As technology programs, the development of these elements has been the responsibility of the Services. In order to complete the entire system, to include the Battle Management, Command, Control, and Communications, and to integrate all of the elements into a single system which could be deployed, a single management organization is required. After examining a wide range of possible organizations a Joint Program Office reporting to the Director of BMDO was determined to best accomplish the goals of the program.

Mr. WELDON. If the Services have agreed with BMDO on the need for and mechanisms associated with a JPO, why hasn't the office been formally created?

Dr. KAMINSKI. While the Services have agreed with and supported the JPO concept, there were a significant number of details related to the implementation which had to be resolved before the organization could be formally established. These include many issues associated with personnel, organizational relationship, and the proper delegation of authorities. It was appropriate to ensure that these issues were adequately resolved before the JPO was officially established. In the interim, we have not been idle. Upon receiving my direction to establish a JPO, LTG O'Neill took immediate steps make it a reality. He appointed an acting Program Manager and has had a provisional organization performing the functions associated with a JPO while these issues were resolved. This provisional organization has been efficiently managing the NMD program, while simultaneously preparing to establish the formal organization. We are now ready to stand up the JPO.

Mr. WELDON. When will the JPO be established?

Dr. KAMINSKI. The establishment of the JPO could be completed at any time. Out of consideration for Senator Steven's request, we delayed the stand-up ceremony to allow me to review the validity of the decisions which led to the direction of the JPO. I completed that review and directed LtGen Lyles to establish the JPO by October 1, 1996. It was, however, our understanding that the 1997 Appropriations Act might include specific language related to the JPO. We have delayed stand-up of the organization because we were not sure we would comply with this language.

Mr. WELDON. Will the JPO supplant jobs in Huntsville?

Dr. KAMINSKI. It is our belief, and both LTG O'Neill and LtGen Lyles have so stated to members of the Congress, that the JPO will not result in a decrease in jobs in Huntsville. In fact it is our belief that the additional emphasis being placed on NMD will have the opposite effect, resulting in additional opportunities for the Huntsville community.

Mr. WELDON. What decisions will be made as part of the DAB review now scheduled for January of next year?

Dr. KAMINSKI. The DAB will verify: that the NMD program has achieved Phase I status; that the NMD program has been and will be documented appropriately for its Phase I status; and that the NMD program should indeed continue in a Phase I status. The DAB will further approve the DoD planning for continuing the program, including the definition of the acquisition strategy, exit criteria, test plans, program baseline, etc.

Mr. WELDON. When will a deployment decision on NMD be made? What criteria will be used to make such a decision? What will be the practical effect of such a decision—what will happen as a result of the deployment decision?

Dr. KAMINSKI. A deployment decision can be made at any time after the successful completion of the Integrated System Test now scheduled for 1999. While such a decision could be made as early as 2000, it could instead be deferred, pending identification of a threat warranting deployment.

The criteria supporting a decision would include, in addition to the successful demonstration of system performance capability, the National Command Authority or President's decision that a threat exists for which a deployment of defenses is needed, decisions about the implications of and/or need to modify the ABM treaty, and the commitment of funding necessary to support fabrication and deployment of the needed system.

The deployment decision will trigger the exercise of program and contract options which have been prepared to ensure that a deployment in three years will be achieved. Fabrication of system components will accelerate. Sites will be prepared. Systems will be installed and tested. Operators will be trained and deployed along with their systems.

Mr. WELDON. Why hasn't the Department brought on a prime contractor to oversee and manage NMD system deployment?

Dr. KAMINSKI. Until earlier this year, the National Missile Defense (NMD) program was a technology readiness activity focused on maturing the technology necessary to eventually build an NMD system. In this environment, a prime contractor would have been inappropriate. With the redirection of the NMD program to deployment readiness, integration of the various elements that comprise an NMD system became a primary focus. The Acting Program Manager has been working diligently to define an acquisition strategy to support the "3+3" program. A major feature of his strategy is a Leader System Integrator that would perform the functions of a prime. The Department is moving aggressively to get this contractor in place. We released a Commerce Business Daily announcement; we briefed industry and defined the general requirements; and now we are working to consolidate inputs from industry and prepare a Request for Proposal (RFP). We plan to release the RFP in November and are targeting a contract award in the second quarter of FY97.

Mr. WELDON. Why hasn't the Department let a contract for development of a NMD system booster?

Dr. KAMINSKI. The Department is in the process of conducting a procurement for a National Missile Defense (NMD) Lead System Integrator, which includes development of the booster for the Ground-Based Interceptor (GBI). Under the NMD Technology Readiness Program, booster development was deferred in favor of completing development of the more technically challenging Exoatmospheric Kill Vehicle (EKV) which forms the front-end of the GBI. We have made considerable progress on the EKV. In addition, the transition of the NMD Program to deployment readiness requires that booster development begin quickly to support a potential FY00 option to deploy. The anticipated NMD Lead System Integrator contract award is planned for April 1997, leading to a GBI booster available to support NMD integrated flight testing in FY99.

Mr. WELDON. Why did the Administration refuse to "open" and review the GBI contract proposals submitted by industry in 1993?

Dr. KAMINSKI. In 1993, the Department of Defense determined that it would be inappropriate to proceed with GBI source selection activities and returned the contractor proposals unopened. The basis of the determination was that the Strategic Defense Initiative (SDI) program and the National Missile Defense acquisition strategy would be part of the "Bottom-Up Review." Rather than continue the procurement activities and subject the bidders to potentially large programmatic changes late in the process, the GBI activity was put on hold pending the results of the review.

Mr. WELDON. Did that action result in considerable delay in the GBI effort?

Dr. KAMINSKI. The decision to change to a Technology Development Program delayed the development of a GBI booster and launch equipment. However, development of the Exoatmospheric Kill Vehicle (EKV) continued. Since the EKV was viewed as the technological "long pole," the reduced National Missile Defense funding was better applied to the EKV than to the booster.

Mr. WELDON. BMDO briefing slides show a Milestone III NMD system production decision in 2009. How does this relate to being able to deploy an NMD system by 2003?

Dr. KAMINSKI. The Department's "3+3" program is designed to allow fielding of an NMD system with an IOC in 2003 if a threat requires. To make this highly accelerated schedule, it would be necessary to deploy without all of the normal testing and without many of the "illities" required for a normal development. The system we would deploy in 2003 would be somewhat more limited in capability than the user would desire, but would be able to defend against an emerging rogue nation threat. If such a threat is not evident, we would continue evolution of this initial capability. The Milestone III production and deployment decision in 2009 is consistent with a normally paced deployment to the objective capability system.

NATIONAL MISSILE DEFENSE SYSTEM REQUIREMENTS

Mr. WELDON. The Joint Requirements Oversight Council (JROC) recently approved a revised set of requirements for an NMD system. According to press reports, this new set of requirements reduces the number of warheads an NMD system must

be capable of defeating from approximately 200 to around 20. Does a formal requirements document exist for National Missile Defense? If not, why not?

General RALSTON. Yes, a formal requirements document exists for National Missile Defense—the National Ballistic Missile Defense Capstone Requirements Document (CRD) was validated by the JROC on 22 August 1996.

Mr. WELDON. Is it true that the JROC recently approved a new NMD requirements document? What can you tell us about its contents? Is this a change from the previous requirement?

Dr. KAMINSKI. Yes, the JROC reviewed, approved, and validated on August 22, 1996, the USSPACECOM National Ballistic Missile Defense Capstone Requirements Document (CRD). The document contains the operational requirements for an objective BMD system which, should the decision be made to deploy it, will field an ABM treaty compliant system to counter limited ballistic missile attacks. Primary changes from the previous requirements document include separating the TMD and NMD requirements into stand-alone CRDs, revising the US defense key performance parameter based on an updated definition of a limited attack, and refining a supporting concept of operations based on what we believe to be the most current guidance and assumptions.

[Deleted.]

Mr. WELDON. What is the threat against which an NMD system will be designed? How many warheads and from which country or countries must an NMD system be capable of defeating? Why was this particular threat chosen?

Dr. KAMINSKI. A potential deployment decision for the NMD system will be driven by a threat to the United States which is not precisely defined at this time. As such, the NMD system is being designed to handle a range of threats from a variety of countries, including [Deleted]. The number of warheads in the threatening countries are consistent with the threshold requirements specified in the National Ballistic Missile Defense Capstone Requirements Document. The Ballistic Missile Defense Organization has developed, in conjunction with the intelligence community, a set of design-to-threat scenarios. These scenarios have been carefully chosen for use in development of the NMD system requirements. They are consistent with the requirements in the CRD and the threat systems and countries in the Strategic Threat Assessment.

[Deleted.]

NMD SYSTEM CAPABILITIES AND OPTIONS

Mr. WELDON. Various NMD system architecture options have been postulated, including ground-based, sea-based, and space-based weapons and sensors.

Can a single-site, 100-interceptor NMD system based at Grand Forks, North Dakota, provide a highly effective defense of all 50 states against an attack of less than 25 warheads launched from any potential source? How much would NMD system performance improve if additional ground-based sites were added to the system? If space-based weapons and sensors were added?

Dr. KAMINSKI. The Department is still examining this issue. The NMD Deployment Readiness Program is being conducted in compliance with ABM Treaty. Depending on its configuration, a deployed NMD system could either be compliant with the ABM Treaty as written, or might require amendments of the Treaty's provisions. The use of space-based sensors will be part of the analysis. Space-based weapons are not part of the planned architecture.

Mr. WELDON. Is North Dakota the best location for a single-site NMD system? What about Maine? Washington state? Alaska?

Dr. KAMINSKI. It appears at this time that a single-site system in North Dakota is a location which provides good defense against a wide range of threatening countries. If, however, an NMD deployment were directed to protect the United States against a specific threatening country, then it is possible that alternative locations (such as Maine, Washington State, and Alaska) could also be suitable.

Mr. WELDON. What is your view of the Navy NMD option? Is Navy NMD technically feasible? Is the Department seriously exploring the Navy NMD option? Is SMTS required for such a system to perform this mission? How would Cooperative Engagement Capability (CEC, which fuses sensor data) improve the performance of a sea-based NMD system?

Dr. KAMINSKI. BMDO has completed a top-level evaluation of a Navy NMD option; a detailed investigation is pending further details and analysis from the Navy. A sea-based NMD system is technically feasible against limited attacks. The technical feasibility of this capability depends on specific knowledge of the threat launch point, the location of the ship (relative to the launch point), and the kinematic capability of this interceptor, among other things. Either SMTS or other forward-based

sensors would be required to provide the early interceptor commit necessary to defend against a limited attack. Though the U.S. has no plans for a sea-based NMD system, a network of forward-based Aegis cruisers utilizing CEC may be able to improve the performance of such a system.

Mr. WELDON. What is your view of the Air Force's proposal to use Minuteman boosters to perform the NMD mission?

Dr. KAMINSKI. The Minuteman is one of several viable candidates for the GBI booster. Others include a booster comprised of off-the-shelf stages and a booster comprised of newly designed stages. The NMD concept is to have industry evaluate the booster candidates in their competition for Lead System Integrator. In that way, the Government will receive assessments of Minuteman's utility.

Mr. WELDON. Is this option feasible, cost-effective, and compliant with relevant treaties?

Dr. KAMINISKI. The Minuteman booster is capable of meeting NMD engagement requirements. However, it may not be an optimum choice for several reasons. Its burn time is longer than that of both new-stack and off-the-shelf stage candidates, which reduces the amount of battle space available to NMD by consuming engagement time. It is not designed to be a dormant system, which greatly increases its operation and support cost. It would require a new guidance set to be able to fly typical defensive system trajectories. It could also put the Government in the position either of being the GBI integrator or of accepting the liability of providing the booster to the integrating contractor as Government Furnished Equipment. These aspects make the Minuteman proposal potentially less technically attractive than the other options.

From a cost standpoint, the Minuteman proposal is attractive in the short term due to the existence of the stages. However, a Minuteman stack must be modified in order to function as the GBI booster. In addition, because the Minuteman system is designed to have 24-hour-per-day operators, its operation and support cost far exceeds that of the baseline GBI concept, the dormant round. Therefore, the apparent cost advantages of Minuteman boosters from existing inventory are counterbalanced by the cost of required modifications and the cost of operation and support.

None of the GBI options has undergone review for compliance with the relevant treaties. The Minuteman proposal would have to be reviewed with regard to both the Anti-Ballistic Missile (ABM) Treaty and the Strategic Arms Reduction Treaty (START).

Mr. WELDON. Has a careful review of this option been performed by the Department? If not, why not?

Dr. KAMINSKI. The Ballistic Missile Defense Organization NMD Tiger Team reviewed the Minuteman proposal in FY95. It was deemed a concept whose greatest utility was linked to the "2+2" development and deployment option. The Department of Defense selected the "3+3" option over the "2+2" option due to the cost and risk associated with the latter. Thus, although the Minuteman was considered feasible, it was not the preferred option for longer-term NMD solutions. Further review of the concept will occur under the NMD Lead System Integrator procurement.

Mr. WELDON. How much does the Department plan to spend on this option during FY1996?

Dr. KAMINSKI. The Department did not plan to spend any funds on this option in FY96. However, the FY97 Appropriations Bill earmarks $23M for this concept.

BASIS FOR PROGRAM REVIEW DECISIONS

Mr. WELDON. The BMD Program Review, completed in early 1996, resulted in a $2 billion cut to the THAAD program and endorsement of a "fly-off" between THAAD and Navy Upper Tier after the year 2000. A key input to this decision was the Joint Staff's recommendation to slow development of more capable TMD systems (THAAD and Navy Upper Tier) and instead concentrate attention and resources on the lower tier systems (PAC–3 and Navy Lower Tier). Please describe the results of the independent review of TMD systems performed by Generals Welch and Went and other retired four-stars. How important was this review in shaping your views on TMD funding and program strategy?

Dr. KAMINSKI. In the fall of 1995, the JROC commissioned a study to review TMD requirements. The study team, headed by General Went, USMC (Ret.), included General Welch, USAF (Ret.), General RisCassi, USA (Ret.), and ADM Jeremiah, USN (Ret.). General Went's study recommended:

a. Capping the Ballistic Missile Defense budget at $2.8 billion per year ($2.3 billion for TMD and $.5 billion for NMD).

b. Focusing dollars on PAC–3 and Navy Area Defense System, with the intent that these systems will share the lower tier mission.

c. Delaying the fielding of THAAD allowed both THAAD and Navy Theater Wide to continue development towards a decision point in the 2002/2003 time frame. This was based upon an assessment by the study that suggested that longer range, faster threat missiles are proliferating slow enough to allow delay in production of upper tier systems. The study also recommended funding THAAD at $400 million and Navy Theater Wide at $200 million per year over the POM.

d. Equipping all TMD systems with JTIDS/MIDS and TADIL–J with priority given to PAC–3 and Navy Area Defense System; and vigorously pursuing a netted-distributed CEC-like capability.

e. Keeping Airborne Laser on track to enter its demonstration/validation phase by 2002–2003.

f. No CORPS SAM new start, but continue US involvement in the MEADS project demonstration, definition, validation phase with the allied participants (Germany and Italy).

The JROC reviewed and endorsed portions of the study and, as a result, prepared various JROC internal staffing actions. The final recommendation rejected the proposal to fund THAAD at $400 million and Navy Theater Wide at $200 million per year over the POM and the concept of a "fly-off" between THAAD and Navy Theater Wide. The Program Review did not slow down the THAAD User Operational Evaluation System (UOES), but it did slow down production and delayed First Unit Equipped (FUE).

Basis for BMD Program Review Decisions

Mr. Weldon. Critics assert that this review failed to take into account the importance of layered defenses and how "upper tier" defenses can provide improved protection to critical assets and broad areas. Do you agree that layered defenses are important? Has the JROC approved requirements for THAAD that take into account the improved capabilities provided by upper tier systems? Why then did the Joint Staff recommend, and you, Dr. Kaminski, agree with the recommendation to slow upper tier systems?

Dr. Kaminski. I would differ with the critics' assessment that the review did not understand the importance of layered defense. The participants assessed the projected mission area threat and felt that the longer range, faster threat missiles are proliferating slow enough to allow a delay in production of upper tier systems. THAAD has a JROC-approved requirement, but delaying its fielding allowed both THAAD and Navy Theater Wide to continue development. We are projecting a User Operational Evaluation System (UOES) for THAAD in FY98–99. I agree that a lower and upper tier defense capability is necessary, and we are working to that objective along a time line that considers the projected threat and the needs of our warfighters across the warfighting spectrum.

Mr. Weldon. In deciding to cut the THAAD budget by $2 billion, you rejected input from the Commander-in-Chief, U.S. Forces Korea, General Luck. Why weren't General Luck's views heeded? Is DoD in the habit of rejecting inputs from theater/warfighting CINCs on such matters? Wasn't Goldwater-Nichols intended to elevate the role of the CINCs in resource allocation decisions?

Dr. Kaminski. I value the input I receive from our warfighters. I continually talk to them and their staffs to solicit their thoughts on a host of issues. Additionally, the JROC personally visits the CINCs semi-annually to discuss a variety of issues. General Luck was concerned about the theater missile defense threat on the Korean Peninsula and that is why, early on, he asked to move a Patriot Battalion to Korea, which we did. As the CINC, he was interested in obtaining the best capability, as soon as possible. The immediate threat facing Korea is the Scud type threat, one best suited for Patriot. That is why we increased our efforts to expedite the fielding of lower tier systems. As a result of General Luck's input, the JROC recommended to the Chairman of the Joints Chiefs of Staff that additional funds be added to the proposed THAAD program to enable a User Operational Evaluation System (UOES) that could be deployed to Korea if needed in the 1998/1999 time frame.

TMD Capabilities Today Versus During Operation Desert Storm

Mr. Weldon. Only marginal improvements have been achieved in U.S. TMD systems in the five and one-half years since Desert Storm.

Please describe the improvements in U.S. TMD capabilities that have been fielded since the end of Desert Storm.

Dr. Kaminski. The Department has fielded a number of significant improvements since Desert Storm. The Marine Corps is fielding a ballistic missile capability for the HAWK system which includes improvements to the missile, command and control of the missile firing, and the AN/TPS–59 surveillance radar. This latter im-

provement allows the HAWK unit to engage theater-class ballistic missiles (the HAWK/TSP–59 system will provide capability against short-range ballistic missiles in the SS–21 and SCUD class) and to provide acquisition and cueing information to other radars (such as Patriot). We have also made significant improvements to our early warning of ballistic missile attack. Not only is the information more timely, the location of enemy launch points is more precise and impact-point prediction is much more accurate. Better launch-point prediction helps us target enemy missile launchers more quickly and accurately. Better impact-point prediction and faster early warning allows field commanders or civilian populations to take more effective defensive measures. Two Patriot improvements, the Quick Response Program and the Guidance Enhanced Missile, have increased the area that can be defended by Patriot and improved the accuracy and killing power (lethality) of the missile. This will provide a more robust capability against the threat experience in the Gulf War (Al Abbas, Al Hussein, etc.) and new threats such as the North Korean No Dong-1. These are only the first of several incremental improvements to Patriot that will lead to the fielding of the PAC–3 missile in 1999.

Mr. WELDON. How would these systems perform against the extant threat in Iraq and North Korea? In other words, how effective would current U.S. TMD systems be against known threats? Compared to Desert Storm?

Dr. KAMINSKI. The threat most widely deployed today is the 500–km and below ballistic missile. The PAC–2 with Guidance Enhanced Missile (GEM) and the HAWK weapon system have capabilities against this threat. The PAC–2 (GEM) has a significant improvement in the altitude and down-range intercept capability over the original PAC–2 system that we had during Desert Storm. The HAWK weapon system has an improved radar (TPS–59) that successfully demonstrated its TBMD capability by intercepting two Lance missiles at White Sands Missile Range.

Mr. WELDON. Why hasn't the Department had more success in fielding such improvements? Have senior officials in OSD and the Joint Staff failed to provide sufficient oversight and attention to these programs?

Dr. KAMINSKI. The Department has been successful in fielding improvements to existing air and missile defense systems to allow them to defend against short-range tactical ballistic missiles. Prime examples of this activity are the deployments of PATRIOT PAC–2 Guidance Enhanced Missiles (GEM) and the U.S. Marine Corps HAWK upgrades. Additionally, we have activated the first Air Force Attack and Launch Early Reporting to Theater (ALERT) squadron with the BMBO-developed TALON SHIELD system at Falcon AFB, Colorado, and the first Joint Tactical Ground Station (JTAGS) to provide tactical mobile stereo DSP data into the theater.

For our systems currently in development, the major factor to timely fielding is one of engineering and system integration, not technology. For example, the THAAD program is comprised of an entirely new radar, missile, and command and control suite. These newly designed components were required because Patriot could not simply be adapted for the longer-range theater ballistic missile threat. As a result, there are significant development, engineering, and manufacturing tasks, which while similar to those faced by Patriot, are being applied to entirely new hardware components, not merely as upgrades to existing equipment. There are very few shortcuts that can be taken if we expect to field a system that is reliable, affordable, and operationally effective. It requires a disciplined systems engineering and integration process to develop a prototype and, subsequently, and operational unit. This process takes time and allows for the incorporation of lessons learned before the system is delivered to our soldiers or sailors.

AGREEMENTS ON TMC DEMARCATION AND ABM TREATY MULTILATERALIZATION

Mr. WELDON. The Administration in June, and again this week, announced it had reached agreement with Russia and others on modifications to the Anti-Ballistic Missile (ABM) Treaty regarding certain TMD systems and on adding signatories from the Former Soviet Union to ("multilateralizing") the Treaty. Concerns have been expressed, however, regarding aspects of these agreements.

Administration officials have testified that the U.S. is within its rights under the ABM Treaty to make unilateral determinations of compliance with the treaty (for instance, with THAAD). If this is the case, then why is the Administration negotiating with Russia at all?

Dr. KAMINSKI. The U.S. has made clear that, until agreement on demarcation is reached, each side will continue to make its own compliance determinations based on its own interpretations of the ABM Treaty. To date, we have determined all of our core Theater Missile Defense (TMD) programs to be compliant, most recently the THAAD system, as we informed Congress on 27 September. We have also certified the Navy Theater Wide system. However, we continue to believe it is desirable

to conclude a demarcation agreement. This agreement would record a clear understanding among ABM Treaty parties on the compliance of TMD systems and preclude disputes or ambiguities concerning current and future TMD systems. Such an agreement is entirely compatible with, and supportive of, our TMD programs and objectives.

Mr. WELDON. Does the Administration intend to comply with the law and submit both the Agreed Statement on TMD Demarcation and the Memorandum of Understanding on ABM Treaty Succession to the Congress for approval?

Dr. KAMINSKI. Section 406 of the "Department of State and Related Agencies Appropriations Act, 1997" established a requirement for a Presidential report on whether the Memorandum of Understanding and the Agreed Statement on TMD Demarcation represent substantive changes to the ABM Treaty and whether they will require the Senate's advice and consent. The President on 29 November 1996 submitted this report, which provides the Administration's views on issues concerning Congressional approval of these agreements; and I would defer to it.

Mr. WELDON. Do you agree that the Demarcation and Multilateralization agreements constitute substantive changes to the Treaty? It not, why not?

Dr. KAMINSKI. Section 406 of the "Department of State and Related Agencies Appropriations Act, 1997" established a requirement for a Presidential report on whether the Memorandum of Understanding (MOU) and the Agreed Statement on TMD Demarcation (ASD) represent substantive changes to the ABM Treaty and whether they will require the Senate's advice and consent. The President submitted this report on 29 November 1996, and I would defer to its conclusions as to whether the ASD and the MOU constitute substantive changes to the Treaty.

Mr. WELDON. Press reports suggest that Russian Foreign Minister Primakov has demanded limits on Navy Upper Tier and other U.S. "high velocity" TMD systems and on the use of space-based sensors with lower and upper tier systems. Are these reports accurate? What was the U.S. response?

Dr. KAMINSKI. Higher velocity TMD systems and space-based sensors have been a longstanding Russian concern throughout the demarcation negotiations, and over time the Russians have proposed a number of measures applying to such systems. However, the U.S. has accepted no limits on space-based sensors or on the velocity of TMD systems. With respect to the Navy Theater Wide system (formerly known as Navy Upper Tier), we have certified the system as currently planned to be compliant with the ABM Treaty and have so informed the Russians.

Mr. WELDON. Have Ukraine and other non-Russian states actually signed the Agreed Statement or the Memorandum of Understanding? If not, how can these agreements be considered "final"?

Dr. KAMINSKI. None of the participating states, including the U.S. and Russia, has signed any of the four documents, including the Agreed Statement and the Memorandum of Understanding, that have been negotiated in the Standing Consultative Commission (SCC). In late September, Secretary of State Christopher and Russian Foreign Minister Primakov agreed that the SCC should reconvene to complete these documents and prepare them for signature at the Deputy Foreign Minister level by the end of October. Consistent with the ministerial agreement, the SCC convened in early October, and all four documents, including the Agreed Statement and the Memorandum of Understanding, were agreed upon by all of the SCC delegations, conformed, and transmitted to their respective capitals for final approval. The Russians subsequently proposed changes to these documents that were inconsistent with the Christopher-Primakov agreement and unacceptable to the U.S. Thus, the documents were not signed as planned. We are continuing our dialogue with the Russians in political channels in an effort to sign the documents as previously agreed and conformed.

Mr. WELDON. The National Defense Authorization Act for Fiscal Year 1996 "preapproves" implementation of the Agreed Statement on TMD Demarcation only if the agreement applies to all TMD systems (lower and upper tier) and if it allows full use of space-based data. Given this fact, and given that the recent Demarcation Agreement applies only to lower tier systems and does not explicitly permit use of space-based sensor data, on what basis does the Administration argue that the Congress has pre-approved implementation of the agreement?

Dr. KAMINSKI. Section 406 of the "Department of State and Related Agencies Appropriations Act, 1997" established a requirement for a Presidential report on whether the Memorandum of Understanding and the Agreed Statement on TMD Demarcation represent substantive changes to the ABM Treaty and whether they will require the Senate's advice and consent. The President submitted this report on 29 November 1996, which provides the Administration's views on issues concerning Congressional approval of these agreements; and I would defer to it.

SMTS Program

Mr. Weldon. The Defense Science Board recently concluded a study that called for acceleration of SMTS deployment to 2004 (vice 2006; Congress had directed deployment in FY2002). What steps have you taken to ensure that the SMTS program will in fact be accelerated to 2004, or possibly even earlier?

Dr. Kaminski. I have directed the Air Force to prepare an SBIRS-Low deployment plan for FY04, to include acquisition strategy, test plan, and program baseline. The Defense Resources Board will assess preliminary cost estimates for this accelerated program. The Defense Acquisition Board (DAB) will also review more detailed technical and cost data in April 1997. This DAB could approve a selected deployment option.

Mr. Weldon. Accelerating SMTS provides an opportunity to perform a rigorous analysis of the appropriate mix of capabilities between the "High" and "Low" components of the overall SBIRS architecture. What steps are you taking to ensure this trade study is done in a timely manner? Do you agree with the DSB that this study should be performed by an independent entity (vice the SBIRS "High" contractor), so as to ensure its objectivity?

Dr. Kaminski. I agree with the DSB that an independent team should oversee the "system-of-systems" engineering being performed by the SBIRS-High prime contractor and Air Force SPO, but the independent team should not actually perform the system engineering function itself. I have chartered DUSD(Space) to establish such a review board that will consist of Service, Intelligence Community, BMDO, and federal laboratory representatives. A prime role of this board will be to assess the impact of SBIRS (with a low component) on other U.S. weapon and surveillance systems, and how allocation of requirements between SBIRS-High and -Low can potentially affect these other systems. This independent board will begin meeting on 13 November and will provide a report to the April 1997 SBIRS-Low DAB.

Mr. Weldon. Will the Department fully fund the SMTS program in the FY1998 budget request and over the Future Years Defense Program so as to ensure it can meet the 2004 deployment date? If not, why not?

Dr. Kaminski. As noted in my 24 July 1996 letter to Congressional committee chairman, the Department plans on selecting and funding a deployment option in the FY1999 budget request, using program data presented at the April 1997 SBIRS-Low deployment decision DAB. The FY1997 and 1998 spending plans are independent of a final deployment date. The two competing contractor teams have significantly different design approaches (far different than SBIRS-High, for example), resulting in potentially major differences in deployment cost estimates. Air Force and OSD review of cost data at the April 1997 SBIRS-Low DAB will ensure that cost differences are handled in a rigorous, disciplined fashion. The Department continues to review funding options for possible inclusion in the FY1998 budget submission.

Mr. Weldon. What is the status of the Department's plan to enhance competition in the SMTS program? Will both contractors fly satellites as part of the new program strategy? If so, when will those flight tests occur? If not, why not?

Dr. Kaminski. A "Competitive Dem/Val" contract for $179M was signed on 3 September 1996, thus bringing Rockwell (teamed with Lockheed/Martin) on-line as a strong competitor for the EMD phase of SMTS. Rockwell will conduct a flight experiment with a single satellite launch in late FY1999. TRW/Hughes will continue with their dual-satellite Flight Demonstration System (FDS) launch in 4th QTR FY1999. These competing risk-reduction satellite efforts represent different design approaches which significantly reduce the overall technical risk of the program.

Mr. Weldon. When will the Defense Acquisition Board meet to review the overall SBIRS program, including the restructured SMTS program? Will you apprise us, in writing, of the results of that review?

Dr. Kaminski. The DAB met on 1 October 1996 and approved entry of SBIRS-High, Block 1 into EMD. The DAB will meet again in April 1997 to review SMTS and direct its deployment date and configuration within the SBIRS "Systems-of-Systems." I will be happy to provide you a report of the April DAB.

United States-Israeli Cooperative Missile Defense Programs

Mr. Weldon. The U.S. is pursuing numerous cooperative missile defense-related programs with the Government of Israel.

The Arrow interceptor missile recently conducted a successful flight test. When will the Arrow be deployed by Israel?

Dr. Kaminski. [Deleted.]

Mr. Weldon. How much will the deployment of Arrow cost, and what percentage of the cost will be borne by the United States?

Dr. KAMINSKI. Production and deployment of the Arrow baseline operational system is funded by Israel. The U.S./Israeli Arrow Deployability Program (ADP) covers the system integration and testing of the complete Arrow Weapon System. The share ratio of the ADP program is 36/64, with the U.S. share totaling $202M and the Israeli share totaling $354M.

Mr. WELDON. How effective will the system be against the projected threats?

Dr. KAMINSKI. [Deleted.]

Mr. WELDON. What technical benefits will the U.S. derive from the Arrow system?

Dr. KAMINSKI. The U.S. has full visibility and access to the Arrow Weapon System design and test program. The information gained aids risk reduction for U.S. TMD systems in the areas of kill assessment, electro-optical seeker/focal plane array, RF sensor/radome, and flight environments effects, phenomenology, and TMD modeling & simulation.

The Arrow Weapon System will be adapted for interoperability with U.S. TMD systems.

THAAD AND EXTERNAL CUEING

Mr. WELDON. Has the Administration made a determination that THAAD can be deployed with hardware and software which allows external sensor cueing? If so, please provide a copy of the determination to the Committee. If not, when will such a determination be forthcoming?

Dr. KAMINSKI. The ABM Treaty compliance determination that the THAAD program can proceed as planned applies to the complete program, including the planned deployment.

Mr. WELDON. LTG O'Neill testified that significant capability, in terms of defended area or "footprint," would be lost if THAAD was not allowed to receive external sensor cueing data. Do you agree? How much would THAAD's defended area "footprint" shrink if it was not allowed to receive such data?

Dr. KAMINSKI. Since both the THAAD User Operational Evaluation System and objective system can proceed as planned, including their ability to receive and process cueing data from external sensors, there is no need to be concerned about a hypothetical reduction in the size of the defended area if that data were not available.

NAVY UPPER AND LOWER TIER TMD SYSTEMS

Mr. WELDON. What is the status of and the schedule for the Navy Lower Tier program?

Dr. KAMINSKI. The schedule for the Navy Lower Tier program is as follows:

Milestone II—1QFY97.

UOES Phase I (AEGIS computer modifications)—4QFY98.

UOES Phase II (UOES missile delivery)—3QFY00.

First Unit Equipped (FUE)—2QFY02.

We are currently conducting risk reduction flight demonstration activities in support of Milestone II.

Mr. WELDON. When the system be deployed?

Dr. KAMINSKI. The Navy Lower Tier system will be deployed coincident with First Unit Equipped (2QFY02).

Mr. WELDON. Why were what LTG O'Neill described as "fact of life" issues allowed to delay the program?

Dr. KAMINSKI. "Fact of life" issues described by LTG O'Neill were delays experienced during risk reduction activities. These delays were a result of technical difficulties in fabrication, integration, and testing of the Risk Reduction Flight Demonstration flight hardware. As an event-driven activity, individual Risk Reduction Flight Demonstration events are tied to successfully exiting the previous event. As such, additional time was required, and no amount of increased funding would have recovered the lost schedule.

Mr. WELDON. What is the status of and the scehdule for the Navy Theater Wide program? When will the program conduct a flight test involving an attempted intercept? Has the Department made Navy Theater Wide a Major Defense Acquisition Program? If not, why not?

Dr. KAMINSKI. The Navy Theater Wide program is in the final stages of transition from a technology to an advanced technical demonstration program. The demonstration interceptor design review is scheduled for October 1996. The kinetic kill vehicle study will begin 30 days after an initial study guidance review. In addition, the Program Executive Officer for Theater Air Defense has commenced an assessment to reduce risk for the demonstration decision, development, and flights. The kinetic kill vehicle study should be completed in FY98, followed by a decision point. The flight

demonstration program reflects a schedule with the first flight in early FY00 and first intercept attempt in early FY01. Navy Theater Wide has not yet been designated a Major Defense Acquisition Program, but we are currently considering this as we prepare the FY98 budget.

Mr. WELDON. The Department is exploring various kinetic kill vehicle (KKV) options for the Navy Theater Wide system. When does the Department plan to down-select among the competing KKV options? How much does the Department plan to spend on this review. Will the review result in any delay in the conduct of the program?

Dr. KAMINSKI. The Department is expected to complete the kinetic kill vehicle study and determine the NTW KKV configuration in FY98. Study costs are expected to be within the recommendations in the Congressional Report language in the 1997 Authorizations Act. The Department plan is not to delay any aspect of the advanced technical demonstration program due to results of the KKV study. However, the Department will reexamine the cost and technical benefit of completing the demonstration flights after the KKV is selected.

Mr. WELDON. Has the U.S. promised not to test high-speed TMD systems such as Navy Upper Tier for three years, as was reported in the press recently?

Dr. KAMINSKI. No, the U.S. has made no such promises. As press reports to that effect are inaccurate.

UNITED STATES-RUSSIAN COOPERATIVE PROJECTS

Mr. WELDON. The United States and Russia have been discussing and in some cases implementing cooperative BMD projects and discussions.

What is the status of on-going U.S.-Russian cooperative BMD projects? Have the Russians finally agreed to allow these projects to proceed? What is/was the holdup on the Russian end?

Dr. KAMINSKI. The two primary projects for which we are pursuing U.S.-Russian cooperation are the Active Geophysical Rocket Experiment (AGRE) and the Russian-American Observation Satellite (RAMOS).

BMDO continues to support the AGRE program. The Russians have put AGRE on temporary hold to resolve questions regarding the role of the midcourse space experiment in viewing the AGRE launch that would involve a Russian military launch vehicle. The Russians recently offered an alternative launch vehicle which would be a research vehicle. BMDO is assessing the utility of pursuing this alternative. Additionally, BMDO is seeking further information regarding Russian concerns, so that the AGRE effort can move forward with the originally proposed military launch vehicle. We are currently looking at relative benefits for both the near-term (launching early in CY1997 with a research launch vehicle) versus delaying and launching as soon as possible thereafter with a military vehicle. Currently, we have a contract mechanism in place to exchange funds with the Russians as soon as we mutually agree on when to proceed.

Mr. WELDON. The Department is on record strongly supporting continuation of the Russian-American Observation Satellite (RAMOS) project. Has the Department continued to press the Russian Ministry of Defense to support this important project? What is the prognosis for RAMOS?

Dr. KAMINSKI. The Department has continued to follow up on prior requests to the Russian Ministry of Defense for written responses to previously written inquiries and letters of support. In addition, we have worked actively to assess the willingness of the Russians to support both RAMOS and AGRE. Our preference for military cooperation is that both programs can be pursued, although options exist for continuing on either program, should the Russian Ministry of Defense prefer. The recent Russian approval of RAMOS has improved the prognosis compared to several months ago.

Mr. WELDON. What is the status on the U.S.—Israeli Boost Phase Intercept (BPI) program? Can a joint BPI program be defined which meets both U.S. and Israeli requirements? What roles will BMDO and the U.S. Army play in the program? How will the FY 1996 funds be apportioned?

Dr. KAMINSKI. The U.S. Has presented a preliminary Cooperative Risk Mitigation Statement of Work (SOW) for Unmanned Aerial Vehicle (UAV) BPI to the Israeli Ministry of Defense for review. The SOW outlines cooperative activities in areas where technological uncertainties need to be mitigated; particularly those of mutual interest and benefit to the U.S. and Israel. The areas of cooperation and benefit cover all the major UAV BPI system elements (i.e., UAV, search and track sensor, battle management, interceptor). The SOW is currently being revised by the U.S. in response to draft comments received from the Israeli Ministry of Defense. Plans are to issue a contract in FY 1997.

A joint BPI program can be defined which meets both U.S. and Israeli requirements. However, it is important to realize that since Israel and the U.S. are currently redefining UAV BPI requirements, they are expected to have some differences early in the process. The Israeli operational theater is inherently better characterized than the diverse theaters of operation that U.S. expeditionary forces might face while serving in up to two major regional conflicts. However, both systems will share many attributes, including the need for search and track function, battle management schemes, platform tactics, and survivability. These areas are being examined for equipment commonality, modularity, platform survivability, and shared tactics.

BMDO is the program integrator for both the cooperative U.S.-Israeli risk mitigation effort and the U.S. UAV-based BPI requirements exploration. The U.S. Army is participating in the tri-Service Integrated Product Teams that support both efforts.

Mr. WELDON. Despite the fact that in May the Administration announced that it has agreed with Israel on joint development of a Tactical High-Energy Laser, referred to as THEL/Nautilus, Little has been done to implement the agreement. How much will be spent on this program, and what is the U.S. cost-share? How much has been spent to date?

Dr. KAMINSKI. Following the May 1996 agreement between the Secretary of Defense and Israel, the U.S. and Israel signed a formal Memorandum of Agreement (MOA) on July 18, 1996. Subsequently, the Army executed a letter contract with the prime contractor, TRW, on July 23, 1996. The Concept Design Review was held in Israel on July 22–24, 1996 and an In-Process Review (IPR) was conducted in August 1996. The final IPR is scheduled in March 1998 at the completion of the Advanced Concept Technology Demonstration (ACTD).

THE U.S.–ISRAEL COST SHARE

[In millions of dollars]

	Fiscal years—		
	1996	1997	1998
Israel Share	20.0	9.5	0.0
U.S. Share	3.5	50.0	16.5
Total	23.5	59.5	16.5
Total program	.....	.....	99.5

Israel is to provide the acquisition radar and contributes $29.5M of the estimated $99.5M total costs of the ACTD.

To date, the U.S. has dispersed the FY96 share of $3.5M to the TRW contract. TRW has billed $1.6M of the Israeli FY 96 $20M share.

For Clarification, the Nautilus and THEL programs are two separate, yet related, efforts involving the use of high-energy lasers for air defense applications. Nautilus, a joint U.S.-Israeli effort, evaluates the effectiveness of high-energy laser technology to counter airborne threats. This effort is conducted primarily at the High-Energy Laser Test Facility (HELSTF).

The THEL program, on the other hand, is an Army cooperative technology demonstration, directed towards developing a THEL demonstrator (mobile, modular unit) to defend against specific rocket targets threatening the Israeli border.

Mr. WELDON. How does this program relate to the "DAGGR" program, and will DOD fund DAGGR in the FY98 budget submission?

Dr. KAMINSKI. The THEL program is not directly related to the DAGGR technology development. Although both address similar threats such as cruise missiles, UAVs, and small cross section ballistic projectiles, THEL and DAGGR use two different technological approaches. DAGGR uses kinetic or hit-to-kill projectiles as its killing mechanism, while THEL uses directed energy to kill threat vehicles. Based on tests and analyses, THEL is more effective against the threats included in the cooperative program with the Government of Israel, and it is the most promising technology in which to invest limited R&D resources. The Department will not fund DAGGR in the FY98 budget submission.

Status of THAAD Program/Flight Testing

Mr. Weldon. The Theater High-Altitude Area Defense (THAAD) program, once deployed, would provide a significant increase in capability over the only extant U.S. TMD system, the Patriot. However, THAAD has suffered from recent developmental difficulties including three failed flight tests.

What is the status of the THAAD flight test program? When will the next test be conducted, and will it involve an intercept? What caused the recent test failures, and are you confident those problems have been corrected?

Dr. Kaminski. To date, THAAD has conducted six of nine planned Demonstration/Validation flight tests. The most recent test, conducted on July 15, was the program's third attempt to intercept a ballistic missile target. The corrections to the previous anomalies discovered on the first two intercept attempts were validated in subsequent flight tests. The most recent failed intercept is attributed to an anomaly in the missile seeker electronics. The next missile flight test, scheduled for early December 1996, is a planned intercept, and will integrate the THAAD radar as the primary sensor. On October 9, the THAAD radar conducted a radar systems test in which it tracked a ballistic target in order to gather data needed for discrimination algorithm development.

Mr. Weldon. What criteria must be met before the User Operational Evaluation System (UOES) option on the THAAD contract can be approved? According to the Department's current schedule, when will that occur and when can we expect that a THAAD UOES to be fielded? Where will the UOES system be deployed (Korea? Saudi Arabia? Israel? Other?)

Dr. Kaminski. THAAD UOES is not an objective system and therefore will not be fielded to the Army. In the event of a national emergency; however, THAAD UOES could be deployed to provide a limited capability against the Theater Ballistic Missile (TBM) threat.

The Acquisition Decision Memorandum requires two criteria for exercising the UOES missile option: (1) successful Hardware-In-The-Loop (HWIL) testing and (2) one body-to-body intercept using the THAAD radar. HWIL testing is complete, however, the lack of a successful intercept during flight testing has delayed the award of the UOES option.

The next scheduled flight test will be in early December 1996. If a successful intercept is achieved, the UOES missile option could be exercised in January 1997. Deliveries of UOES missiles would then begin in FY98, approximately 18 months after the contract option is exercised, with a total of 40 missiles delivered by FY99.

THAAD and the ABM Treaty

Mr. Weldon. Some claim the ABM Treaty does not allow THAAD to be deployed with computer hardware or software that allows use of external sensor cueing (e.g., from DSP or SMTS). Former BMDO Director LTG O'Neill has testified to the Committee that "we need to start working this software in October 1996 or we would suffer a day-to-day slip in having this capability." Mr. Robert Bell of the National Security Council staff has stated, however, that the Administration would not allow the Treaty to stand in the way of THAAD development, including development of hardware and software necessary for external sensor cueing.

What is the status of THAAD's compliance with the ABM Treaty? Why hasn't the Department released the funds for THAAD external sensor cueing hardware and software? When will those funds be released?

Dr. Kaminski. We have now determined that we can proceed with the THAAD program as planned, including both the User Operational Evaluation System and the objective system, consistent with the ABM Treaty. The THAAD program has been given authority to proceed as planned without any restrictions.

Mr. Weldon. How much has DoD spent to "dumb down" THAAD?

Dr. Kaminski. No reduction in THAAD's performance has been made to assure it would comply with the ABM Treaty. The previous compliance determination for THAAD was based on information available in 1993 about the system design. In 1993—early in the program—the THAAD system design was necessarily preliminary, with many details yet to be decided. In order to complete the compliance determination then, some assumptions about THAAD characteristics were required in areas where program details were not yet fully developed. As a result, certain assumptions were used for the purpose of the compliance determination which we now understand do not reflect actual THAAD performance. The system design has changed since 1993, and THAAD's capabilities and limitations are better understood now. Our current assessment of THAAD compliance reflects our current understanding of the actual THAAD performance.

United States-Russian Cooperative Projects

Mr. Weldon. The recently signed Defense Authorization Act includes direction that $20 million be spent during FY1997 on joint U.S.-Russian cooperative BMD projects. Does the Department have a plan for spending these funds? If not, when will such a plan be completed? Please provide a copy of the plan to the Committee.

Dr. Kaminski. BMDO has centralized its management structure for the existing U.S.-Russian cooperative projects to promote an integrated effort and sharply focus resources for these important initiatives. BMDO's plan for allocation of the $20M authorized for U.S.-Russian cooperative projects is as follows:

	Million
RAMOS	$10.0
AGRE	6.7
Electric Space Thrusters	1.4
Energetic Materials	0.2
Photovoltaics	0.1
Other Research Projects	1.6

Note: The FY97 Authorization Bill specified $10M for "RAMOS". The FY97 Authorization Bill authorizes $20M for U.S.-Russian Cooperative BMD programs. BMDO is currently working to develop a Russian cooperative program which meets the reduced $10M appropriation figure.

Corps SAM/MEADS

Mr. Weldon. The United States, Italy, and Germany have agreed to jointly develop a new system, called MEADS, to defend against aircraft, cruise missiles, and short-range ballistic missiles. France recently decided to back out of the program.

What is the status of the MEADS program? How has France's decision to not participate affected the program?

Dr. Kaminski. MEADS is fully funded in the President's Budget to conduct the Program Definition and Validation Phase (PD/V). The contract for the PD/V phase was awarded October 4, 1996. The two international contracting teams are headed by Hughes/Raytheon and Lockheed Martin respectively and their European partners, (DASA, Siemens, and Alenia) will separately develop a MEADS system specification and computer simulation model. A down-select competition will occur in 1QFY99 for the team that will conduct the Design and Development Phase.

The result of France's decision not to participate was to descope the program to remove the French-peculiar requirements and slightly limit the testing of the computer model. This action reduced the cost of the PD/V phase, while keeping the amount of each international partner's investment at the previously agreed level.

Mr. Weldon. What will the MEADS program cost, and what is the U.S. cost share?

Dr. Kaminski. The U.S. cost share of the MEADS PD/V phase is 60% or $113.9M (FY97–FY99). Because of the interest many of our Allies have expressed in MEADS, it is difficult to approximate the U.S. cost share in future phases. Additionally, a true program cost cannot be ascertained until MEADS system is further defined in the PD/V phase and more details are known.

Mr. Weldon. Has the JROC validated the requirement for MEADS?

Dr. Kaminski. In August 1990, the JROC validated the Corps Air Defense Capability Mission Need Statement (MNS). Additionally, the JROC designated the Army as approval authority for the Corps Surface-to-Air Missile (CORPS SAM) Operational Requirements Document (ORD) in September 1993. The Army approved the ORD on October 5, 1993.

Mr. Weldon. Didn't the Joint Staff recommend against proceeding with MEADS and instead suggest making improvements to the Patriot?

Dr. Kaminski. There has been at least one study that suggests foregoing MEADS in favor of a Patriot upgrade. However, the results of this study were overridden by several studies which came to a different conclusion. The JCS position strongly endorsed the MEADS program. In fact, the U.S. Army has named MEADS as the Patriot replacement. Part of the rationale for the endorsement of MEADS is that the extreme modifications necessary for Patriot to meet the MEADS requirements (speed, firepower, transportability) would cost in excess of the MEADS baseline.

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